Andrey Smirnov

Why did the Soviet Air Force fight worse than the Luftwaffe?

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“Everything was wrong.”
about A.I. TIRES

Welsh Patriotic War: Unknown War

Andrey Smirnov

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“EVERYTHING WAS WRONG” - this note by A.I. Pokryshkin on the margins of the official publication “Soviet Air Forces in the Great Patriotic War” became a verdict on communist propaganda, which for almost half a century had been talking about the “superiority” of the red-star aviation, which “threw Hitler’s vultures from the sky” and won complete air supremacy.

This sensational book, based not on agitation, but on reliable sources - combat documentation, authentic materials for recording losses, uncensored memoirs of front-line soldiers - does not leave Stalin's

myths stone on stone. After analyzing the combat work of Soviet and German aviation (fighters, dive-bombers, attack aircraft, bombers), comparing operational art and tactics, the level of qualification of command and personnel, as well as the performance characteristics of combat aircraft of the USSR and the Third Reich, the author comes to disappointing, shocking conclusions and answers the most acute and bitter questions: why did our aviation operate much less effectively than the German one? Whose fault is it that "Stalin's falcons" often looked almost like "whipping boys"? Why, having an overwhelming numerical superiority over the Luftwaffe, did the Soviet Air Force achieve much less success and suffer incomparably greater losses?

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FOREWORD

Perhaps it would not be an exaggeration to say that until 1988-1989. the study of the history of the Great Patriotic War in our country pursued not so much scientific as propaganda goals. Military historians, in essence, had to deal with anti-science: instead of identifying, criticizing and analyzing historical sources, to establish the truth, they had to comment, illustrate and propagate the truth established for them a priori - the truth, lowered from the corridors of power and called upon to strengthen this power. The Soviet military historian was required, in essence, only a selection of facts "visibly showing" "the advantages of the Soviet social and economic system", "the superiority of the military organization of the socialist state over the military machine of fascist Germany", "the leading role of the Communist Party in organizing rebuff to the enemy ", “the indestructible moral and political unity of the Soviet people”, “the mass heroism of the Soviet people”, “the high combat skill of the Soviet soldiers” - etc. and so on. If such facts were not enough or did not exist at all, then they were simply invented - thus engaging in the very falsification of history, in which the USSR did not get tired of blaming "bourgeois researchers". Let's give just one example. “The infantry maneuvers little, does not use methods of envelopment and encirclement, and in most cases acts head-on,” this was how the actions of the troops of the 11th Guards Army in the Oryol operation (July 1943) were assessed in a report compiled shortly after these events Representative of the General Staff at the Western

front of Colonel A.I. Kharitonov'. But what is possible

read about the same actions in the memoirs of the former commander of the 11th Guards I.Kh. fortified heights and settlements with frontal attacks, they try to bypass them from the flanks, attack from the rear "...2

The real, but inconvenient for the propaganda of the “glorious past of the Soviet Armed Forces”, the facts were either denied, or hushed up, or, at worst, carefully retouched and presented as semi-harmless “temporary failures”, “certain difficulties” and “separate shortcomings” ... Equally "scientific" was the criticism of the assessments that were unflattering for the Soviet side, contained in the sources and literature of the opposite side - for example, in the memoirs of German military leaders. These assessments - if they were not hushed up at all - were simply, without any argumentation, declared "slander" and "fabrications" ...

Accordingly, the successes were belittled and the strengths of the enemy were hushed up - very often depicted purely in a propagandistic way, in a caricatured form. A vivid expression of this predominance of propaganda over science, of emotions over sober analysis, was the propagandist-disparaging terms and phrases that characterized the German army and penetrated not only popular science, but also scientific (in form) Soviet publications: “Hitler warriors” , "fascist vultures", "air pirates", "enemy hordes", etc. The enemy, in fact, was not studied by Soviet military historians at all!

You can also point to a few really scientific, devoid of propaganda pre-perestroika domestic works on the history of the Great Patriotic War - works that were intended for the military reader (the Soviet Army still needed to learn from its failures). But these works were closed

ty character. Open, more or less objective research on this topic began to appear only in 1988. However, since approximately 1995, the official Russian military history science has been increasingly returning to the Soviet traditions of studying the history of the Great Patriotic War — to the traditions of replacing research with propaganda. After the release in 1998 of very informative and scientifically sound four-volume essays “The Great Patriotic War. 1941-1945” the scientific level of the works coming out under the auspices of the Russian Ministry of Defense has again become, as a rule, frankly miserable - and sometimes even zero. As a typical example, one can point to the commentary of the Military Historical Journal (the official publication of the General Staff of the Armed Forces of Russia) to one of its documentary publications in 2001. By publishing

description of the combat operations of a motorized rifle regiment, compiled in July 194] by its commander and depicting the actions of the regiment as heroic and effective, the editors declare that these notes “completely refute the opinion now widely held in society, according to which in the summer of 1941 the troops of the Red Army allegedly without exception, they were seized with panic and, without offering stubborn resistance to the enemy, they randomly retreated. Not to mention the fact that the reliability of the published source needs to be checked - after all, the regimental commander is interested in presenting the actions of his unit in the best light! - Let us recall that there were several hundred rifle and motorized rifle regiments in the Red Army in the summer of 1941, and it is, to put it mildly, incorrect to draw such a global conclusion based on information about the combat work of only one of them. However, what can we say about scientific correctness if commentators do not even notice that the regiment described in their publication was not part of the Red Army at all (it belonged to the NKVD troops)! What can we say about scientific correctness if the publisher of the document does not even know that the abbreviation “k/r”, which was generally accepted in those years, meant not “criminal” (!), but “counterrevolutionary”, and the editors do not notice this mistake and doesn't fix it! In the same period

the fantastic figure of 57,000 German aircraft destroyed by the Soviet Air Force is cited again and again in the publication “- although from the data of the service of the Luftwaffe quartermaster general published in the USSR as early as 1957, it is clear that only the total number of destroyed and damaged (in even slightly) of German aircraft — not on the Soviet German, but on all fronts of the Second World War... In general, the desire for a more or less objective study of the history of the Great Patriotic War in Russia is now the lot of almost exclusively independent researchers — among which, however, are also encountered by amateurs in science.

All of the above also applies to such an aspect as the combat operations of aviation on the Soviet-German front. The available several general works, firstly, affect the combat work of only the Soviet Air Force, and, secondly, suffer from all the vices of Soviet military history science (more precisely, military history propaganda) - the poverty of the factual material cited, the lack of evidence for the most important conclusions , propagandistic vanity, and finally, just deceit. Characteristic is the note made three times Hero of the Soviet Union A.I. Pokryshkin on the margins of the book “Soviet Air Forces in the Great Patriotic War 1941-1945.” opposite the place where praises are sung to the tactics of Soviet fighter aviation in the April battles of 1943 over the Kuban village of Krymskaya, where it is said about the “pronounced offensive nature” of these battles, that “the interaction between the clans was successfully organized

aviation", about the successful use of large groups of fighters, "which drove away patrolling enemy fighters or tied them up in battle", etc. "It was not like that," Alexander Ivanovich, who took part in these battles, briefly wrote... A truly scientific study on the history of the combat use of aviation on the Soviet-German front -

of both German and German origin - we still have
No.

Naturally, the creation of such a work is not a work for one researcher and it will take years. However, the sketch can, I think, be done today. Indeed, over the past 15-18 years (approximately since 1992), thanks to the efforts of independent Russian, Belarusian and Ukrainian researchers - of which V.I. Alekseenko, N.N. Bazhenov, V.G. , M.V. Zefirov, D.M. Degtev, K.Yu. Kosminkov, V.R. Kotelnikov, S.P. Kulbaka, A.N. Medved, M.E. Morozov, V.A. , V.I. Perov, O.V. Rastrenin, V. Ratkin, A. I. Rusetsky, Yu. V. Rybin and D. B. Khazanov - a considerable backlog has already been created. materials for writing a scientific history of the combat use of the Soviet and German Air Forces in the Great Patriotic War. Exploring particular issues of the history of Soviet and German aviation and combat in the air during the Second World War, these authors drew on many new sources, including not only documents of the Soviet Air Force that had not previously been studied from the funds of the Central Archive of the Ministry of Defense of Russia and the Central Naval Archive , but also documents of the Luftwaffe, as well as the memoirs of Luftwaffe pilots and the memoirs of Soviet front-line pilots written already in post-perestroika times - memories that were no longer "smoothed" by the Soviet censorship and therefore are simply an invaluable source! (In general, the merits of post-perestroika collectors and publishers of such memoirs - S. Anisimov, N. G. Bodrikhin, V. Vakhlamov, A. Dikov, A. V. Drabkin, G. Koifman, O. Korytov, I. Kramnik, V. Ratkina, A. Serykh, A. Sukhorukov, A. Yurchenko, A. Yakovleva and others are, without exaggeration, invaluable before the national historical science: let's not forget that there are fewer and fewer war veterans every year ...).
Belarusian historians published for the first time in Russian a well-known study by the former General of the Luf Twaffe W. Schwabedissen8, which, in essence, is a collection of German sources on the history of the combat work of the Soviet Air Force on the Soviet-German front.

A great deal of work on bringing together the factual material on the history of the Luftwaffe, contained in the Western historical aviation literature, has been done in the last decade by M.V. Zefirov.

In general, over the past one and a half to two decades, a lot of new facts have been introduced into scientific circulation, drawing

us the history of the fighting of the Soviet Air Force Iluftwaffe in the Great Patriotic War in a completely different light than in pre-perestroika times. So many of these facts have already accumulated that it became possible (as well as necessary) to proceed to their generalization and analysis - and on this basis to re-investigate, or for the first time, a number of aspects of the above-mentioned problem.

The proposed work is one of the first attempts at such a generalization and analysis. This is by no means the history of aviation operations in the Great Patriotic War. The purpose of the author is only:

_ 1) sum up - at least in the first approximation - the results of the combat work of the Soviet and German Air Forces on the Soviet-German front and.

2) to identify the reasons that determined this or that degree of effectiveness of the actions of these Air Forces.

At the same time, the author considered it possible to limit the object of study to the three main types of military aviation of the Second World War — fighter, attack and bomber — leaving the activities of reconnaissance, mine-torpedo, corrective and transport aviation outside the scope of the work.

First edition of this book? was published in November 2005 (the year 2006 appears in the imprint) - just on the eve of the second (after 1992) wave of publications of sources and independent studies covering air combat operations on the Soviet-German front (among the publications of this one, which began in 2006 of the “second wave” of particular value are the publications by A.V. Drabkin of the memoirs of Soviet front-line pilots, the research of V.G. Zefirova, D.M.Dyogteva and N.N.Bazhenov and historical and technical works of A.N.Med

leading and D.B.Khazanov). In preparing this second edition, the author tried to use these sources and the factual material of these studies to the maximum extent and take into account the new conclusions of researchers; this made it possible not only to enrich the book with factual material, but also to clarify or make more conclusive a number of conclusions and assessments (for example, regarding the criteria for the effectiveness of fighter aviation operations or regarding the combat work of German attack aircraft and fighter-bombers E \! 190E and (A) The result is something between a "second, corrected and enlarged edition" and a new book. The new edition also eliminates traces of illiterate editing of the manuscript of the first edition by the editors of the AST publishing house - a correction that was carried out without the knowledge of the author and which not only made the style of presentation clumsy in places, not

only violated in many cases the rules for citing sources and literature, but also distorted the meaning of a number of phrases (especially in the first part of the book).

The author considers it necessary to stipulate his fundamental rejection of the use of abbreviations instead of the full names of aviation units, units, formations and associations, which is now generally accepted in the historical aviation literature. Of course, this leads to an increase in the volume of the text - but, according to the author's firm conviction, what is permissible in special military and technical publications does not always look appropriate in the text of a historical study. Therefore, instead of, for example, “32 GI AP”, we will always have “32nd Guards Fighter Aviation Regiment”, instead of “(P / KO27” - “III group of the 27th bomber squadron”, instead of “9. / 54 { S3 "-" 9th detachment of the 3rd dive squadron "- etc. The designations of German aircraft will be given not Russified (Me-109, Yu-88, etc.), but the original German ones (B1109, Ll88, etc. We also consider ourselves entitled to return to the original, corresponding to the rules of Russian word formation, spelling of the adjective, formed from the noun "bolshevik" - "more VITSKII".

Notes

1 Russian archive. The Great Patriotic War. T. 15 (4-4). M., 1997. S. 366.

2 Bagramyan I.Kh. So we went to victory. M., 1988. C: 396.

3 Survived in the heat of the first battles // Military History Journal. 2001. No. 5. P.22.

4 Kornukov A.M. Air Force of the Fatherland: stages of a long journey // Military History Journal. 2001. No. 8. P. 10.

5 See: World War. 1939-1945 M.; SPb., 2000. S.719-722.

6 Soviet Air Force in the Great Patriotic War 1941-1945. M., 1968; Timokhovich I.V. Operational Art of the Soviet Air Force in the Great Patriotic War. M., 1976; Kozhevnikov M.N. Command and Staff of the Air Force of the Soviet Army in the Great Patriotic War. 1941-1945. M., 1985.

7 Quot. by: Timofeev A. V. Pokryshkin. M., 2003. S. 276-277.

8 Shvabedissen V. Stalin's falcons. Analysis of the actions of Soviet aviation in 1941-1945 Mn. 2001.

9 Smirnov A. Combat work of Soviet and German aviation in the Great Patriotic War. M. 2006.

Part |
FIGHTER AVIATION

Head |

RESULTS OF FIGHTER COMBAT WORK
ON THE SOVIET-GERMAN FRONT

1. BY WHAT CRITERIA IS THE EFFICIENCY OF FIGHTER
AVIATION ACTIONS EVALUATED?

The ultimate goal of fighter aviation is to protect its ground forces and other branches of its aviation from the impact of an air enemy. In the last decade in our country, both researchers and front-line pilots have been increasingly holding the idea that the effectiveness of fighter aviation operations is determined only by the fact of achieving or not achieving this ultimate goal. At the same time, the reader is led to another thought - about the insufficient effectiveness of the actions of the German fighters and the sufficient effectiveness of the actions of the Soviet fighters. After all, the proponents of this point of view point out that the German fighter pilots were primarily striving to shoot down as many enemy planes as possible, no matter what! and incur as little loss as possible. Therefore, they neglected the direct escort of their bombers and attack aircraft (after all, it is very difficult for a fighter “tied” to these latter, deprived of freedom of maneuver, to “catch” an enemy aircraft, but the chances of being shot down themselves are very high) and thereby allowed the Soviet “hawks” to pluck bombing and bombing attacks on Soviet troops. And groups of Soviet bombers and attack aircraft continue to parse

us now, the authors, the Germans attacked only at the moment those ones left the attack (when the red-star plane ceased to be covered from the tail by the plane following it), or even did not attack at all - if they considered that the conditions for this were unfavorable, that the risk of a breakthrough through fighter cover and/or through the concentrated fire of aerial gunners is too great. Those. the Germans did not try to disrupt the blow to their ground forces. The Soviet fighter pilots were not chasing the number of shot down, but to prevent the enemy from striking the Soviet troops and preventing him from interfering with the actions of Soviet attack aircraft!

But, firstly, such statements distort reality. It suffices to refer to the notes made in recent years (and published by A.V. Drabkin)

here are conversations with Soviet front-line pilots to make sure that timing of their attacks on Soviet attack aircraft (Il-2 attack aircraft and Pe-2 bombers) by Luf Twaffe fighters by the time they left the attack was by no means “standard” (according to expression of M.S. Solonin2?) situation. If fought in the 31st Fighter Aviation Regiment L.3. Maslov notes that the Germans “did not like” attacking the Il-2 on the way to the target, then V.A. on approach, and on departure, and boldly, and persistently. The same follows from the memoirs of N.P. Tsygankov, who fought in the 21st Fighter Aviation Regiment of the VVSVMF, and fought in the 814th (which later became the 106th Guards) Fighter K.G. Zvonarev and N.E. Bespalov. And the veteran of the 867th (then the 107th Guards) fighter I.I. Kozhe, who constantly accompanied the Il-2, softly claims that “the Germans more often attacked the silts.” on the way to the goal” (although “they could also be on the retreat, on the pursuit”) and never refrained from attacks (“at least once, but they will definitely try”). From the memoirs of K.G. Zvonarev it is clear that even in the summer of 1944 German fighters could attack even at the moment the IL-2 was over the target (usually they did not do this due to excessive

high risk of falling under the shells of their own anti-aircraft guns); this is confirmed by a number of episodes described by VG Gorbach in his monograph on the actions of the Soviet Air Force in the Battle of Kursk. From the same work - and even from those few descriptions of the battles of "pawns" with fighters, which are given in the last monograph by A.N. Medved and D.B. targets were attacked more than once and Soviet bombers ... 3

Yes, and Soviet fighters began to strictly observe the rule “it’s better not to shoot down a single Messerschmitt, but also not to lose any of the escorted Il-2 or bombers, than to shoot down three Messers, but to lose at least one escorted attack aircraft”, began to strictly observe only from the end of 1943. Prior to that, the situation described in the directive of the commander of the Red Army Air Force A.A. groups and often lose them”; this happened more than once in the Battle of Kursk, which began on July 5...4 Until the end of 1943, the pilots of the red star "hawks" were by no means persistent in their attempts to thwart the attacks of German bomb carriers. “All the reports of the commanders of the German bomber units,” wrote General of the Luftwaffe V. Shvabedis Sen, who analyzed the actions of the Soviet Air Force in the late 50s, “testify that in 1941 Soviet fighters did not pose a threat to the formations of German bombers and often avoided combat with the latter” (as well as Junkers L187 dive bombers); they did not show "the necessary perseverance in the attack">. "Fak-

tami on the Kalinin, Western, Stalingrad, Southeastern and other fronts,
- it was also indicated in the order of the People's Commissar of Defense of the
USSR No. often fails to complete tasks. Our fighters not only do not engage
in combat with enemy fighters, but avoid attacking bombers. Back in July
1943, during the defensive battle on the Kursk Bulge, the infantry, according to
the commander of the 16th Air Army of the Central Front

that S.I. Rudenko, “unanimously declared that the fighters did not protect her, did
not fight with the bombers, but were hiding behind the rear””. According to
Soviet documents, this was also the case at the offensive stage of the Battle of
Kursk - in the Oryol and Belgorod-Kharkov operations. The "hawks" of the 1st
Air Army of the Western Front, which covered the 5th Tank Corps in mid-
July, "on very rare occasions engaged in battle with enemy bombers; th Air
Army of the Voronezh Front, even at the beginning of August 1943, tried
to “cover” its troops in such a way that, if possible, they would not meet with
German bombers, but, “appearing on the battlefield while enemy aircraft were
there, in most cases from avoided the fight."

Secondly, the German fighter aviation simply could not afford to act on
the principle that its Russian critics consider the only justified from a military
point of view - "die, and provide cover, without any" next time "?. Her actions
on this principle would very soon end in her complete annihilation. After all,
its numbers on the Soviet-German front - first because of the very limited
production of fighters by Germany, and then because of the need to resist
the powerful aircraft of the United States and England - was very limited
(as of January 1, 1943, there were about 12,300 Soviet aircraft, but only
395 German day fighters, on January 1, 1944 - 13,400 and 47,310, respectively).
In those conditions of constant shortage of forces in which the military-
political leadership of Germany placed it, the German fighter aviation after 1943
(when from 2/, to 3/. and the Soviet Air Force not only increased dramatically
in numbers, but also switched to more effective tactics) in principle could not
neutralize the Soviet ones and ensure the actions of their attack aircraft. And the
maximum possible for her, with the minimum of forces that she had, she could
do only by refusing to

from accepting a fight in unfavorable conditions. In 1944-1945. Soviet strike aircraft were already flying in large groups and retained a compact formation, which reduced the number of directions from which the aircraft could attack fighters, and made it possible to concentrate defensive fire from several aircraft at once on the attacker. And the escort fighters began to operate in two groups - one of which tied up the attacking enemy in battle, and the other kept close to the covered ones as a second line of defense. Therefore, German fighters attacked groups of attack aircraft and bombers only if it was possible to do so suddenly. Breaking through “into the middle of the circling crowd” of aircraft, Glipfert from the Pgroup of the 52nd Luf Twaffe fighter squadron emphasized, describing the winter battles of 1945 in Hungary and Slovakia, I “would have received a lot of hits” and “I would have to turn home, and without shooting down a single enemy aircraft", and with sudden attacks on the vehicles that closed the group, "he won a victory in almost every sortie, without receiving any hits himself" !!. And, by the way, using such tactics during the German counterattack near Lake Balaton in January 1945, units of the 52nd and other fighter squadrons increased the share of fighter casualties in the total combat irretrievable losses of attack aircraft of the 17th Air Army of the 3rd Ukrainian front to about 50% - although on average in Soviet attack aviation it was then only 26%. In other words, the combat survivability of the Il-2 (which at that time amounted to 85-90 sorties for one irretrievable combat loss) in the January battles in Hungary was halved (to 45 sorties)!2 precisely because of the few German fighters ... It is characteristic that in the Soviet Air Force, pilots, for example, of the 13th Fighter Aviation Regiment, faced in 1942 near Stalingrad with the numerical superiority of the enemy, switched to exactly the same tactics. “We,” recalls the former pilot of the 13th regiment, S.D. Gorelov, “tried to catch single planes or small groups that had come off, immediately shoot them down and retreat.” It is no coincidence that, according to him, the Germans stopped getting involved in open air battles (“only when

attacked us suddenly, they could attack us or grab someone lagging behind"), it was after the Battle of Kursk - when the gap in the number of German fighters and the most powerful 2nd Air Army of the 1st Ukrainian Front (which included the then-111- m Guards regiment of Gorelov) has become quite large ...! 3

In general, the refusal to act on the principle of "die and provide cover" testifies to the insufficient effectiveness of the military-political leadership of Germany, and not of the German fighter aviation.

Thirdly, it is necessary to evaluate not only tactical principles, but also the results of their application. More le-

In 1943, the focus of Soviet fighter aviation not on destroying aircraft, but on disrupting bombing and assault strikes on its troops, very often did not bring any effect. So, according to the report of the senior officer of the General Staff of the Red Army at the Voronezh Front, Colonel M.N. attack aircraft" - nevertheless "allowed the bombs of enemy barrage aircraft to bombard our combat formations of troops in an organized manner." According to the report of the senior officer of the General Staff at the Central Front, Colonel V.T. all tactical depth. But the German fighters opposing the 16th Air Force—although their actions were “primarily aimed at destroying Soviet aviation”—managed to almost tightly close the area where their attack aircraft were operating...!5 By the summer of 1944 The opposition of Soviet fighters forced the Germans to transfer their bomber aircraft to operations exclusively at night. However, one gets the impression that this step was largely reinsurance: in 1944, summarizes W. Schwabedissen, German “reports

again and again note the caution of Soviet fighter pilots when attacking German bombers "in daylight conditions"!6. Only the attacks themselves became more: according to the fair remark of I.I. Kozhemyako, by the beginning of 1944, “we had so many fighters that the Germans simply did not have the strength to tie them up in battle” and prevent bomb carriers from joining the ranks! That is, the withdrawal of the German bombers from the game during the day was achieved primarily due to the quantitative (rather than qualitative) growth of Soviet fighter aviation, and this does not indicate the high effectiveness of the actions of this latter.

And the attack aviation of the Luftwaffe (i.e., formations of dive bombers Junkers L187, replaced during 1944 by formations of attack aircraft and destroyer bombers Focke-Wulf E \! 190E and C), neutralize the Soviet "hawks" in this way and couldn't. Yes, W. Schwabedissen wrote that in 1944-1945. "all the efforts of the German dive bombers were reduced almost to nothing by the huge numerical superiority of the Soviet fighters"!8. But he referred here to the famous dive ace H. W. Rudel - and Rudel claimed the exact opposite; according to him, during the entire war he only once had to abandon a combat mission due to the opposition of enemy fighters (in July 1944 in the Yaroslav region in Galicia)! And even then it was the "Mustangs" of the US Air Force - flying along with the cover-

by their "flying fortresses" to the areas adjacent to the Soviet-German front. Until the very end of the war, Rudel emphasized, “we always struck at the marked target, even in the event of an overwhelming superiority of enemy aircraft”!9; the pages of his memoirs are replete with descriptions of the continuous L187 strikes of his 2nd assault squadron on Soviet troops in 1944-1945. - in Romania, Ukraine, Poland, Latvia, Lithuania, Hungary, [Germany... There are many such descriptions in the memoirs of Soviet front-line soldiers; here, for example, are the testimonies of those who fought in the winter and spring of 1944 on the northern sector of the Soviet-German front.

“Soon we will fall under the bombing of dive bombers,” recalls the episodes

February battles of the 2nd shock army of the Leningrad Front on the Narva bridgehead, who then served as a platoon commander in the 116th corps cannon artillery regiment of the 43rd rifle corps V.A. Khodosh. -... When we returned to the NP, my soldiers, who had been fighting for more than a year and a half, said that they had come under such bombardment by dive planes as we are today for the first time»?0. The memories of the former sergeant of the 1067th rifle regiment of the 311th rifle division N.N. dive bombers flew at us ... 21

And here is equally eloquent evidence, referring already to the end of August 1944 and to the southern wing of the Soviet-German front - on which the Iasi-Kishinev operation was then unfolding. When the 233rd tank brigade of the 5th mechanized corps of the 6th tank army of the 2nd Ukrainian Front rushed to the “Foksha gates” between the Eastern Carpathians and the Seret River, her former officer D.F. Loza recalls, “ piled on" L187. “But there is nothing to repel aircraft raids”22 ...

The testimonies of Soviet front-line soldiers also refute Schwabedissen's assertion that "by the end of the war, the crushing numerical superiority of the Russians in fighter aircraft caused the almost complete cessation of the flights of German attack aircraft"?3. “How many times the Germans bombed us, but the fighters did not cover us,” recalls meetings with L187S and E \! 190E and C attack aircraft in 1944-1945. in Right-Bank Ukraine, in Galicia and near Berlin, who then served in the 49th (in 1945 - 35th Guards) mechanized brigade of the 6th Guards Mechanized Corps of the 4th (in 1945 - 4th Guards) tank Army of the 1st Ukrainian Front E.I. Bessonov. And this is a mobile grouping of the front rushing into the breakthrough - whose actions could have not only operational, but also strategic significance! “In the absence of our fighters,” emphasizes Bessonov, describing, for example, the attack on Lvov in July 1944, “the Germans, I will not be afraid of this

words, mocked us without interference. At low altitude, they stormed everything alive, and we suffered losses both in tanks and in personnel”?4. The same bullying was then endured by another mobile grouping of the 1st Ukrainian (bypassing Lvov from the north) - the 3rd Guards Tank Army. By the Peltev River, recalled the former commander of the 53rd Guards Tank Brigade of its 6th Guards Tank Corps, V.S. .) “didn't give us a break all day. Our own fighter aviation, of course [emphasis mine. - A.S.], could not yet move closer to the tip of the breakthrough. The 6th Guards Tank Corps was bombed without hindrance and "very heavily" at the final stage of the Lvov-Sandomierz operation, on the march from Przemysl to the Vistula?5. In June-July 1944, during the Belorussian strategic operation, the mobile groupings of the 1st Baltic and 3rd Belorussian fronts were covered a little better. “We met with Russian fighters very rarely,” noted V. Gail, a former pilot of the III group of the 3rd assault squadron of the Luftwaffe, who bombed these tank corps. “Personally, I saw them only twice, and not once did we lose a car”...26

And here is what appears on the pages of the memoirs of the former officer of the 170th tank brigade, V.P. Bryukhov, the history of military operations in 1944-1945. 18th tank corps. On September 22, 1944, near Arad in Romania, German aviation "continuously bombed and fired on the battle formations of the brigade" - "but our aviation was inactive" ... Debrecen operation. Across the Danube near the Yugoslav Sombor, the corps (transferred from the 2nd Ukrainian to the 3rd Ukrainian Front) in late November - early December of the 44th had to cross at night: "in the daytime, as soon as it cleared up, German aircraft flew in and mercilessly bombed" ... On December 22, the corps began to break through the Margaret defensive line in Hungary - and again the 170th brigade was "attacked by enemy aircraft"; her blows followed in the following days advice

Russian offensive west of Budapest. And during the German counterattack at Lake Balaton in January 1945? On January 3, Luftwaffe planes in groups of 15-20 "almost constantly hung in the air over the battle formations" of the 18th tank, and Soviet "hawks" (at least over the location of the 170th brigade) appeared only once; On January 4, German aviation "continuously bombed" and "literally tormented" the 170th; in the following days, she again "actively supported" the attacks of her troops on the positions of the brigade,

“raged”, and on January 21 “bombed without hindrance” the rear of the 18th Panzer near the crossing over the Danube near Erchi. The entry in the combat log of the 4th Guards Army (in which the 18th Tank Army was operating at that time) for January 19 does not need comments: enemy"... On March 6, 1945, with the start of the German offensive near Balatono, "enemy planes again appeared over the combat formations of the corps, they increased the power of their fire, bombed the first and second lines of defense." Back in mid-March, V.P. Bryukhov testifies, “enemy attack aircraft supported their troops”; "we waited hopefully for the red star hawks, but they weren't there." The 170th tank "was bombed daily by aviation", "the brigade commander persistently asked the representative of the aviation to call our fighters, but his requests went unheeded"...27 This is how the Soviet fighter aviation "neutralized" the actions of E \ / 190E and in all the cases described above, it was they who acted) ...

As early as May 30-31, 1944, at the beginning of the German-Romanian offensive near Iasi, both E\\!190E and C, and L187 still managed to strike with impunity against Soviet troops and in the face of active opposition from large fighter forces?

Fourthly, the most effective way to help other branches of your own aviation and ground forces is, after all, not neutralization, but the destruction of enemy aircraft (“the paramount importance of destroying enemy aircraft” could not be denied even by M. Solonin - in

elsewhere stressed that "the destruction of aircraft in itself" "is neither the only, nor even the most important task" of fighter aviation?9). After all, a destroyed aircraft will never again be able to take to the air - and, accordingly, it will never again require efforts to neutralize it. And the economy of effort - and even when inflicting material damage on the enemy - increases the efficiency of aviation, makes its operations more effective. It is enough to turn again to the history of the Battle of Kursk. The huge losses inflicted by the German fighters of the 16th Air Army of the Central Front, already on the fourth day of fighting, July 8, 1943, forced a sharp decrease in the activity of attack aircraft - for which there were no longer enough fighters to escort. Of the Pe-2s lifted into the air on the 8th (although there were only 44 of them, despite the fact that there were 185 on July 1), 40% had to be returned because of this to the airfields; On July 9, this percentage was about 3030. And to cover the ground forces, a fighter air division from the neighboring 15th Air Army had to operate. In the 2nd Air Army of the Voronezh Front, on July 11, they were forced to abandon the massive strikes of the Il-2 - due to the actions of the German

there are too few attack aircraft fighters left. On July 20-22, for the same reason, the activity of the 15th Air Army of the Bryansk Front also began to decrease, on August 6, due to losses, the number of sorties of attack aircraft of the 5th Air Army of the Steppe Front sharply decreased, and on the 15th, a sharp drop in activity again experienced 2nd Air Corps: its 10th Fighter Air Corps had been practically knocked out by Luftwaffe aces in the previous 12 days, and the 5th Assault Air Corps had suffered heavy losses from them. Losses were compensated, but on August 21-23, the 2nd Air Force again began to run out of steam ...

Fifth, we must also take into account the level of losses incurred in solving the problem: it is the most important indicator of the effectiveness of troop actions: 1.

That is why, in order to determine the degree of effectiveness of the actions of Soviet and German fighter aircraft on the Soviet-German front, we cannot do without finding out the number of aircraft destroyed by one and the other.

enemy moles and the magnitude of the losses incurred in this case.

Destroyed - or at least shot down. Recall that the concept of "downed" is wider than the concept of "destroyed" ("lost irretrievably"). In the historical aviation literature, it is customary to consider all aircraft shot down if, due to the damage inflicted on them by the enemy, they have lost the opportunity to continue their flight, i.e.: |

- exploded or disintegrated in the air or collapsed after an uncontrolled fall and impact with the ground and

- made an emergency landing

as well as aircraft that reached the airfield after receiving combat damage, but:

- destroyed during landing on it and

- made a normal landing at the airfield, but written off as beyond repair due to too much damage.

Destroyed (irretrievably lost) were vehicles included in the first, third and fourth groups, as well as those from the second, which either collapsed during a forced landing, or were recognized after it as beyond repair, or sat down on enemy territory. The other part of those who sat down on the forced managed to be repaired and returned to service. But still, these machines were not only deprived of the opportunity to perform a combat mission at the moment, but also ceased to require efforts to neutralize them for several days, even weeks.

Thus, the clarification of the question of whose fighters acted more effectively on the Soviet-German front requires establishing:

a) the number of enemy aircraft destroyed on this front by fighters of each side (or at least the number of those shot down, i.e. both destroyed and out of action due to combat damage for at least a few days), and

6) the magnitude of the irretrievable combat losses of Soviet and German fighter aviation on the Soviet-German front.

In turn, the resolution of these questions - which some domestic authors still do not want to realize - is unthinkable without establishing the degree of reliability of the historical sources involved for this.

2. HOW MANY FIGHTERS DID THE USSR AND GERMANY LOSE IN THE FIGHT WITH EACH OTHER?

Let's start with establishing the magnitude of the losses, because this question is somewhat easier to find out: the data we have on the losses of Soviet and German fighter aircraft in all cases were made public by the side that suffered these losses. It hardly needs proof that she has incomparably more complete information about her losses than the enemy who inflicted them on her. In air combat, where the situation changes in a matter of seconds, the pilot has no time to follow the fate of the aircraft hit by his fire; he usually cannot say with certainty whether they fell or still made it to their airfield; he does not know and cannot know how many of those that survived were destroyed during landing or written off as unrepairable, how many of the enemy vehicles that landed on a forced landing were destroyed or turned out to be not on their territory, and how many the enemy managed to evacuate and repair. The ground troops, who check the reports of the pilots about the shot down, cannot know this either: the enemy's territory (at least in the first hours, sometimes days after the air battle) is inaccessible to them; as a rule, they also do not have the strength and opportunities for continuous combing of their location. They are not always able to distinguish the remains of their own aircraft from the wreckage of the enemy ... And anti-aircraft gunners often do not even see the one whose fire hit the falling or smoking enemy aircraft - their battery or the neighboring one. For this reason alone, the number of destroyed and damaged enemy aircraft in their reports doubles, triples, etc.: the same machine is credited to their account by several units at once ...

True, some researchers (for example, D.B. Khaza-

new) believe that reliable information about the losses of the enemy can be obtained without referring to the documents of the enemy side - from the testimony of prisoners of war. However, not to mention the fact that it is not always possible to capture prisoners (and even well-informed ones), one cannot but agree with Yu.V. Rybin that this source is extremely unreliable (if not obviously unreliable). In fact, being at the mercy of the enemy and seeking to alleviate his lot, the prisoner voluntarily or involuntarily begins to "make good" to the interrogator, to say what he wants to hear to the interrogator - the atom, naturally, wants to hear that the enemy is running out of breath, loss etc. . “Russian pilots are trained and fight well,” said, for example, during interrogation, Ober-sergeant major W. Pfrenger from the P group of the 5th fighter squadron “Eismeer”, who was shot down on May 17, 1942 near Murmansk. - Non-German pilots are also good, but now there is a large percentage of young people who [so in the text. — A.S.] do not have sufficient training”32. “It turns out that in the spring of 1942 our pilots were the best? So why did we have such horrendous losses during this time?” Yu.V. Rybinz rightly asks the question3. (In only six air battles between Soviet and German fighters, which took place in the Arctic between April 23 and May 17, 1942, Soviet aviators irretrievably lost, according to their reports, 17 aircraft - while the Luftwaffe, according to German data, lost only two34.) After reviewing a large number of protocols of interrogation of German pilots shot down in the Arctic and comparing the testimony of the latter with Soviet reports on air battles, the researcher came to the conclusion that “the combat qualities of our pilots and aircraft, their successes, starting from 1942”, captured “Praised in every possible way,” exaggerated...h5 Let's give one more example. Shot down on July 8, 1943 over the southern face of the Kursk Bulge, Lieutenant G. Lyuti from the III group of the 52nd fighter squadron showed that during the first three days of the Battle of Kursk (July 5-7), the units of the squadron participating in it irretrievably lost in battles 35 aircraft. According to the German documents that most took into account the losses of their Air Force - the reports of the service

quartermaster general of the Luftwaffe - this number was only 2236.

It is also impossible to rule out deliberate disinformation of the enemy by captured aviators. Scouts of the Soviet ground forces came across prisoners of war-disinformers then more than once37; Luftwaffe Lieutenant A. Krueger, shot down in January 1943 near Leningrad, turned out to be a clear conscious misinformer, who declared that he was serving in [At the group of the 100th Viking bomber squadron, which, together with the P group of the 30th bomber squadron "Adler" is based on the airfields of Pskov

air hub. The fact is that the first of the groups he named did not leave the French airfield of Chartres in January 43, and the second did not leave the Sicilian airfield of Comiso ...

Here we can be pointed out that during the First World War, German prisoners of war were distinguished precisely by the exceptional truthfulness of their testimonies. Unlike the soldiers of the Austro-Hungarian army, he emphasized who served in 1914-1916. in the headquarters of the 3rd Finnish Rifle Brigade and the 40th Army Corps of the General Staff, Colonel B.N. Sergeevsky, the Germans “always gave absolutely accurate and definite testimony. Almost every German seemed to be proud of the fact that he knew everything and could accurately REPORT everything to "Mr. Captain." “A German soldier knows everything a soldier should know,” “a German soldier cannot lie to an officer”—I heard such phrases many times from captured enemies, and they, without any coercion, told everything they could tell. Throughout the war, having interviewed thousands of prisoners, I met only two who tried to lie, and even then retreated from this tactic at the first shout. However, it is not in vain that they say that it was in 1914 that the 20th century began - not as idealistic and patriarchal as the 10th / 10th ... In the years that have passed between the two world wars, the concept of soldier's honor among the German military has undergone a change the essence of which is visible, for example, from the protocol of interrogation of Sergeant Major Hartle from the 217th long-range reconnaissance squadron shot down on June 23, 1941 near Slonim: “He refused to give data on the Heinkel-111 aircraft for two reasons:

as a devoted soldier of Germany does not want to lose his conscience before his homeland. When asked whether it was about honor or fear, he replied that only honor did not allow him to reveal military secrets. Secondly, the Heinkel-111] planes were transferred to the Soviet Union and therefore do not represent any secret for the Russian command. Therefore, it would be an insult to demand from him the loss of honor without any reason. The German tanker, who was captured in September 1941 near Yelnya and interrogated by the commander of the Reserve Front, G.K. Zhukov, reasoned in exactly the same way. "Why do not you answer?" He is silent, - Zhukov said after the war. - Then he declares: “You are a military man, you must understand that I, as a military man, have already answered everything that I had to answer you: who I am and which part I belong to. And I can't answer any other questions. Because he took an oath. And you have no right to ask me, knowing that I am a military man, and you have no right to demand from me that I violate my duty and lose my honor. Another thing is that the numbers of combat irretrievable losses of aircraft, published by the parties that suffered these losses, are also not absolutely accurate in our case. Thus, the relevant information on the Soviet side was published on the pages of the statistical collection “Secrecy Classified Removed” released in 1993 by the Russian Ministry of Defense, and the methodology of its work

compilers raises many doubts and complaints. At least in a number of cases, this technique had nothing to do with science at all: the compilers of the collection have already been accused more than once of falsifying, of underestimating, in order to maintain the prestige of the Russian Armed Forces, the losses suffered by the Red Army in the Great Patriotic War\41. For our part, let us point out the facts that make it possible to suspect the compilers of underestimating the losses of the Soviet Air Force. According to the collection, in the Crimean operation (April-May 1944), the Soviet side lost 179 aircraft; according to the documents of the war years, studied by M.E. Morozov, the 8th Air Army of the 4th Ukrainian Front alone lost 266 vehicles at that time. But the Chernomor Air Force also participated in the Crimean operation

navy, and the 4th Air Army, and part of the long-range aviation forces ... In the Petsamo-Kirkenes operation (October 1944), according to the collection, 62 Soviet aircraft were lost, and according to the data of Yu .V. Rybin - 14243 (although the collection gives loss figures for October 7-29, and Rybin - for October 7 - November 1, but it is impossible to assume that two three days after the actual cessation of aircraft fighting, more were lost than three weeks of intense combat work ...).

However, the figures given in the collection of combat without return losses of Soviet fighters can, apparently, be considered unfalsified. According to the list of losses of combat aircraft of the Red Army Air Force for 1944 compiled during the war (and published by V.I. Alekseenko already in 2000), the combat irretrievable losses of fighters of this Air Force then amounted to 3571 aircraft44. And this is in full agreement with the data of the collection, which gives here a rounded figure of 4100 aircraft "> (the "shortage" in the statement of about 500 fighters is easily explained by the fact that it does not take into account the losses of the Navy Air Force and air defense fighter aviation). Thus, there is no question of underestimating losses; the figure of 500 fighters lost in 1944 for combat reasons by fleet and air defense aviation seems to be even exaggerated. The discrepancies with the data of M.E. Morozov and Yu.V. Rybin can be explained by the fact that the collection in all cases indicates the value of irretrievable losses, and the named authors, perhaps, give the numbers not destroyed, but downed aircraft - some of which were repaired after forced landing. It is known, for example, that during air battles over the Taman Peninsula in April-October 1943, out of 851 Soviet aircraft that landed on a forced plane, only 380 (44.7%) were written off, and 471 aircraft were written off by the repair brigades of the 4th Air Army of the North -The Caucasian Front was able to return to service"6.

But if suspicions of falsification in our case should most likely be discarded, then confidence that

the figures given in the collection "Secrecy stamp removed"

29

The losses of Soviet aviation are not underestimated (even if without malicious intent and to a very small extent), but there is still no such certainty. The witches do not know what kind of documents were used by the compilers to calculate the losses, whether the peculiarities of compiling these documents were taken into account, whether the information of some sources was checked against others. Meanwhile, for example, in the reports on military operations compiled by the headquarters of the air regiments for a given period, their losses were sometimes underestimated. So, daily reports from the headquarters of the 900th Fighter Aviation Regiment of the 288th Fighter Aviation Division of the 8th Air Army of the South Eastern Front show that, fighting from August 24 to September 3, 1942 in the Stalingrad region, the regiment irrevocably lost for combat reasons 14 their Yak-76; these machines were either completely destroyed as a result of air combat, or went missing. However, in the final report on the actions of the 900th fighter near Stalingrad, only 8 aircraft appear as unrecoverably lost during the indicated days - and it was from this figure that the regiment later proceeded when compiling reports on combat work for a particular period ... 48 As far as the compilers succeeded It is not known to restore the true picture in all such cases in the collection “The secrecy reef has been removed”.

Part of the documents of the Wehrmacht is also characterized by incomplete data on its losses. In particular, diaries of combat operations of air fleets are unreliable in this respect. According to these sources, the 6th Air Fleet for July 53-11, 1943 irretrievably lost 33 aircraft, and the 8th Air Corps of the 4th Air Force lost 111 aircraft for July 4-23. quartermaster of the Luftwaffe (who was in charge of accounting for losses), the indicated losses amounted to 64 and about 170 vehicles, respectively. Accordingly, the weekly reports of the Wehrmacht Command (OKW), based on reports from the headquarters of the air fleets, are also unreliable. According to these latter, from June 22 to December 27, 1941, the Germans irretrievably lost 2,212 aircraft on the Soviet-German front (including those beyond repair due to too much damage)20 - a

thirty

according to the service of the Quartermaster General of the Luftwaffe, these losses by August 31 amounted to 2631 units ... 5! For the period December 7-31, 1941, the weekly reports of the OKW give a figure of 180 aircraft irretrievably lost on the Soviet-German front, and according to the data processed by D.B. Khazanov, the German historians O. Gröler and K. Becker, it turns out 324. .52 As noted by RLarintsev and A. Zablotsky, who studied this issue, individual errors can also be found in the materials of the service of the quartermaster general

ster?3. Indeed, after all, their information is based on the reports of units and formations - and these latter, like in the Soviet Air Force, sometimes underestimated their losses. So, according to the documents [of the group of the 28th bomber squadron, it turns out that from July 22 to December 31, 1941, that is, 33 aircraft were killed or damaged by the 2nd 3rd detachments? \ 4, and according to the report of the 2nd air corps, which then operated these units - 41 ... 55

So, in principle, we cannot have absolutely exact figures for the irretrievable combat losses of Soviet and German aircraft on the Soviet-German front. Let us take into account, however, that the figures of their losses published by both sides, if they differ from the actual ones, then in the same direction (decreases) - so that they still must reflect the ratio of the losses of the parties with a sufficient degree of accuracy. In addition, the degree of inaccuracy in the information of such a German source as the documents of the service of the quartermaster general of the Luftwaffe, according to RLarintsev and A. Zablotsky, is "very small." “Copies from the relevant materials for 1943, which one of the authors managed to get acquainted with,” these researchers point out, “make it possible to judge their sufficient fullness Te...>56. This information is fragmentary only for four months of 1945, when the system of centralized accounting for losses in the agonizing Reich went wrong. It seems that the information about the losses of the Soviet Air Force published in the collection “The Classification Removed” can also be considered quite complete;

in any case, the opposite (we are now talking only about aviation losses) has not yet been proven. Based on the information from these two sources, we will try to establish the approximate value of the irretrievable combat losses of Soviet and German fighter aircraft on the Soviet-German front.

For Soviet aviation, the collection “Secrecy Removed” gives a figure of 20,700 fighters irretrievably lost for combat reasons?

As for the German fighter aviation, such a final figure for it has not yet been published in the Russian-language literature. However, one can try to determine it by calculation, based on the information at our disposal of the service of the General Apartments of the Meister of the Luftwaffe:

- on the magnitude of the total (i.e., both combat and non-combat) irretrievable losses of German fighters on all fronts from June 22 to October 31, 1941 (1527 aircraft);

- on the magnitude of the total irretrievable losses of German fighters on the Eastern Front for January - November 1943 (1084 vehicles) and

- on the magnitude of the irretrievable combat losses of German fighters on the Eastern Front in 1944. (839 cars)?8.

Let us first try to determine the total losses of German fighters without return on the Soviet German front in 1941 and 1943. In the case of the 41st, it is necessary first of all to establish how many Luf Twaffe fighters were irretrievably lost from June 22 to October 31 on other fronts. According to German data, the 2nd and 26th fighter squadrons, which were then fighting the British over the English Channel, lost 103 aircraft in battle from July 14 to December 31. Let us assume that these losses were evenly distributed over the months; then we can assume that from June 22 to October 31, the irretrievable combat losses of these formations amounted to about 80 vehicles. Let us assume that the value of non-combat irretrievable losses related to this figure as 47 to 53: this was approximately the structure of the total irretrievable losses of the German Air Force then (see below). Then semi

It is believed that from June 22 to October 31, the total irretrievable losses of the 2nd and 26th squadrons amounted to about 150 aircraft. Night fighters, covering Germany from British raids, could lose about 10 vehicles during this period of time: in the first nine and a half months of 1941, their total irretrievable losses amounted to only 28 units60. To the share of German fighters who fought in June-October 41 over the North and Norwegian Seas (detachments of the 1st and 77th fighter squadrons) and in North Africa (1st group of the 27th squadron, 7th detachment of the 26th I, and in October another P group of the 27th), we will leave 100 irretrievably lost aircraft: near the coast of Germany and Norway, air battles were then isolated, and in North Africa, the Germans were opposed by units of English fighters that were less combat-strong than over La- Man Shem. As a result, out of 1,527 fighters irretrievably lost by the German Air Force from June 22 to October 31, approximately 1,270 fighters should fall on the Soviet-German front. In November and December, according to the service of the Luftwaffe Quartermaster General, the Germans irrevocably lost 613 aircraft in the East!; let us assume that about 200 of them were fighters. Then the total irretrievable losses of German fighters on the Soviet-German front in 1941 can be estimated at about 1470 aircraft.

Since 1943 it is much easier: if for 11 months of this year the total irretrievable losses of German fighters in the East turned out to be equal to 1084 aircraft, then we are unlikely to make a big mistake, assuming that for the whole year they amounted to 12/11 of this number, i.e. . approximately 1180 ma TIRES.

Let us now calculate the magnitude of the irretrievable combat losses of German fighters on the Eastern Front in 1941 and 1943. R. Larintsev and A. Zablotsky, based on

data published in foreign literature, determine the share of these losses in the total irretrievable losses of the Luftwaffe on all fronts at 53% for 1942 and 55% for 1943 - and accept that in 1941 it was the same as in 42-m62. On the Eastern Front with its frosts, disintegration

titse, unpaved airfields, supply difficulties due to off-road and a small number of landmarks in the field over flat sparsely populated plains, the percentage of non-combat losses should have been higher than in other theaters of military operations, but - in the absence of appropriate specific figures - we will take the average figures of Larintsev and Zablotsky. Then it turns out that in 1941 the irretrievable combat losses of German fighters on the Soviet-German front amounted to about 780 vehicles, and in 1943 - about 650. By the way, for 1944, the figure of 839 aircraft must be reduced to approximately 800: after all, of the fighters lost by the Germans in 1944 in the East, about a dozen were destroyed not by the Armed Forces of the USSR, but by US aviation during its raids on industrial facilities in Romania and Poland.

For 1942 and 1945, the desired value can only be calculated very, very approximately. It is known that the average monthly number of groups of Luftwaffe single-engine fighters on the Soviet-German front (where the overwhelming majority of German fighters were single-engine) in 1943 was approximately 12.4, and in 1942 - approximately 15.563, i.e. 1.25 times more. We venture to suggest that the total irretrievable losses of German fighter aircraft in the East in 1942 were 25 times greater than in 1943, i.e. amounted to about 1480 cars. Then the magnitude of its irretrievable combat losses on the Soviet-German front in 1942 can be determined (taking it as 53% of the total) at about 780 aircraft. Losses for the four months of 1945 will be calculated by analogy with 1944. However, let's take them equal not to 33%, but to 40% of losses for 1944. This will to some extent take into account the fact that in 1945 the number of German fighters operating against the Soviet Armed Forces increased. As a result, we will determine the approximate number of irretrievable combat losses of German fighters on the Soviet-German front in 1945 at 320 aircraft.

Let us summarize all the published and calculated figures in the table [.

Table 1

IRREVORABLE COMBATING LOSSES OF SOVIET6* AND
GERMAN FIGHTERS ON THE SOVIET-GERMAN FRONT IN 1941-1945

Combat
irretrievable
losses
of fighters

ratio

However, it would not be entirely correct to compare the loss figures given in Table 1 on one side with the loss figures on the other. After all, besides the German armed forces, the Armed Forces of Finland, Hungary, Romania, Italy, Slovakia and Croatia did not inflict losses on the Soviet Air Force in the Great Patriotic War. Thus, the Finns claim 2,787 Soviet aircraft shot down by them, the Romanians claim about 150,066, the Hungarians, judging by what is known about the activities of their aviators and anti-aircraft gunners, about 100,067, the Italians, apparently, 150— 20068, Slovaks - no less than 1069. In addition, 638 downed Soviet aircraft are listed on the combat accounts of the Slovak, Croatian and Spanish fighter squadrons, which were organizationally part of the German Air Force and were called, respectively, the 13th (Slovak) detachment 52 th fighter squadron, the 15th (Croatian) detachment of the 52nd fighter squadron and the 15th (Spanish) detachment, first of the 27th, and then the 51st fighter squadron ... 70 It is known that out of 526 aircraft, about shot down by the Finns after the war of 1939-1940, the Soviet side recognized as irretrievably lost at least 322 (apparently, about 350)71. Some of them could, however, land on enemy territory due to malfunctions, not connected

those with combat damage, or due to loss of orientation in the usual inclement weather for winter, i.e. could actually refer to non-combat losses. Let us therefore assume that in the “Winter War” the irretrievable combat losses of the Soviet Air Force were not one and a half, but two times less than the number of vehicles that the Finns declared as downed. Then, by analogy, we can assume that in 1941-1944. The Finnish armed forces managed to destroy about 1,400 Soviet aircraft. As for the rest of Germany's allies, let us assume that, like the Germans, they overestimated the number of aircraft shot down by them by about 2.5 times (for the rationale for this coefficient, see Section 3 of this chapter) and that about 25% of those shot down by the Soviet side managed to return to service (in the Kuban, in the 43rd, this percentage, as we saw, reached 45 - but there almost all the battles took place over the territory occupied by Soviet troops, and those who sat down on the forced more often found themselves among their own). Under such assumptions, it turns out that the Romanians, Hungarians, Italians, Slovaks, Croats and Spaniards destroyed about 1000 Soviet aircraft, and together with the Finns - about 2400. It is known that fighters accounted for 45%

combat irretrievable losses of the Soviet Air Force in the Great Patriotic War”2. Therefore (under the assumptions we have made) it can be assumed that about 1100 Soviet fighters were destroyed not by the Germans, but by their allies, and about 19,600 fell to the share of the Germans.

On the other hand, not all of the German fighters destroyed on the Soviet-German front were by any means victims of the Armed Forces of the USSR. In addition to the latter, the French Normandie Fighter Regiment, the Armed Forces of Poland and Czechoslovakia, and from August - September 1944 fought there with German aviation. - and the armed forces of Romania and Bulgaria that went over to the side of the USSR. In particular, the Normandy pilots account for about 100 shot down German fighter planes”3. Carried out by A.N. Medved and D.B. Khazanov according to German documents, the verification of the results of several air battles with the participation of the Normandy shows that the number of victories credited to the French

overestimated by a factor of 3-574, so let us assume that in reality the Normandy managed to shoot down 25 German fighters. Polish and Czechoslovak pilots were counted respectively 16 and about 25 German aircraft shot down on the Soviet-German front”; how many anti-aircraft gunners were credited is unknown, but certainly not less than 100. It should be noted that the Polish and Czechoslovak aviators and anti-aircraft gunners - most of whom were trained in the USSR - like the Soviet ones, overestimated their successes by at least 5 times (see. more on this in section 3 of this chapter); then we can assume that in reality they shot down about 30 German vehicles, of which about 10 could have been fighters. The Romanians lay claim to 101 downed German and Hungarian planes”6; in reality, they apparently shot down 2.5 times (see above) less, i.e. about 40, of which about 30 could be non-German, including about 10 fighters. As for the Bulgarians, the 3-5 German fighters they destroyed in 1944 in Serbia and Macedonia did not belong to the air units of the Eastern Front,77 and in Hungary in 1945 Bulgarian pilots and anti-aircraft gunners hardly shot down more than 5 German fighters. Taking into account the fact that a small part of the downed German aircraft could be recovered, it can be concluded that about 40 German fighters on the Soviet-German front were destroyed by the allies of the USSR; by the Soviet Armed Forces - about 3240.

Thus, in the confrontation between the Armed Forces of the USSR and Germany (without taking into account the actions of their allies on the Soviet-German front), the ratio of combat irretrievable losses of Soviet and German fighters is, according to our calculations, approximately 19,600: 3,240, i.e. approximately 6 : 1. Given the large number of assumptions we made in the calculation and the resulting significant error (much

higher, in particular, the figure we have deduced of German fighters destroyed on the Soviet-German front by the allies of the USSR), for simplicity we will consider this ratio equal to 6: 1.

3. HOW MANY ENEMY PLANES DID SOVIET AND GERMAN FIGHTERS HAVE SHOT ON THE SOVIET-GERMAN FRONT?

Establishing the number of enemy aircraft destroyed (or shot down) by fighter aircraft of each side is much more difficult. As we noted above, the fact of the destruction (or shooting down) of an aircraft can be more or less accurately established only from the documents of the party to which it belonged. But if we turn to the Soviet, for example, reports and lists of losses of our Air Force, we will see that the compilers of these documents did not know who exactly shot down the majority of Soviet aircraft lost during combat missions! They did not know because it was not known to the original source of the relevant information - the participants in the sorties. The latter should not come as a surprise if we take into account that the air combat of the Second World War - which proceeded at high speeds, was characterized by the rapid movements of aircraft in the horizontal and vertical planes and, as a result, instantaneous changes in the conditions of CI - wore, according to the expression of the former attack pilot M .P.Odintsova, "explosive character". "There was just nothing - and instantly a mass of planes before my eyes" "®. Many planes - whether leaving from under the attack of the enemy, chasing the enemy, or breaking away from the group for other reasons - instantly disappeared from the field of view of others pilots of the group - and they never saw them again ... One way or another, the main part of the irretrievable combat losses of their Air Force in the final Soviet documents are not classified as “shot down in air combat”, “downed by anti-aircraft artillery” or “destroyed at airfields ", and to the number of aircraft "not returning from a combat mission" - in other words, those who died for an unknown reason. For example, in 1944, aircraft that "did not return from a combat mission" amounted to no less than 77.7% of all combat irretrievable losses of the Red Army Air Force (6245 aircraft out of 803673)!

51,580 shot down by the enemy during the defensive operation of the troops of the front on the Kursk Bulge (July 4–23, 1943), 51,580 had to be classified as “not returning from a combat mission,” i.e. 87.7% ... In addition, as can be seen from the above, a special account of aircraft destroyed by enemy fighters was not kept in the Soviet Air Force at all, and

"shot down in air combat" could also be victims of shooters of German bombers, attack aircraft or reconnaissance aircraft.

The causes of the death of many aircraft are also unknown in the lists of losses compiled by the German side.

Luftwaffe.

In this state of affairs, it will be necessary to pay attention to less reliable sources. Is it possible to establish, at least approximately, the number of aircraft destroyed (or shot down) by fighters of each side, according to the documents of this side?

Let us clarify right away that, in characterizing the results of the combat work of their own fighter aviation, both Soviet and German sources cite figures not of destroyed, but of downed enemy aircraft. (The Germans usually used the expression "to win an air victory" instead of the expression "to shoot down a plane"; we will sometimes use it too.)

According to official Soviet data, during the Great Patriotic War, Soviet fighters shot down "over" 39,500 "fascist German" planes! (Apparently, after all, not only German and Slovak, Croatian and Spanish, who wore Luftwaffe identification marks, but also Finnish, Hungarian, Romanian and Italian). German fighters, according to official German data, shot down about 45,000 Soviet vehicles? (including, of course, a few dozen red-starred French, Polish, and Czechoslovaks— and perhaps also a few dozen Romanian and Bulgarian soldiers who fought on the side of the USSR).

Immediately dot the 1: these official

each side's data on the number of planes shot down by its fighter pilots— data that some writers still take as the ultimate truth—these data are unequivocally unreliable. Namely, they are overpriced, and overestimated very much. Researchers come across this fact every time they compare the numbers of air victories officially credited to pilots after one or another air battle (or series of battles) with the data of the opposite side about their losses in this battle (battles).

Here, however, the question may arise: maybe it is the side that suffered losses that underestimates them? After all, as already noted, this happened in both the Soviet and German Air Forces. There are, for example, photographs of a bomber lying on the ground surrounded by Red Army soldiers

"Heinkel Don't! 11N-6 "with tail code 1T + KK, belonging to [group of the 28th bomber squadron and rammed on November 27, 1941 in the area of Dmitrov near Moscow by senior lieutenant I.N. Kalabushkin from the 562nd fighter air regiment of the 6th fighter air corps PVOS . Meanwhile, according to the group's loss log, this car was lost on December 4"; in other words, the magazine underestimates its losses for November 27 by one plane ...

However, by attracting not one source, but several, verifying the information according to the documents of the service of the quarters of the Meister of the Luftwaffe, as experience shows, it is possible, as experience shows, to get an almost one hundred percent reliable picture of the results of this or that air battle, this or that day of combat work of a unit, formation or associations. In particular, for most parts and formations of the luff twaffe, such a picture has already been restored in the West. And this is what happened, for example, to Yu.V. Rybin, when he compared the official Soviet data on the results of 43 air battles conducted by Soviet fighters in the Arctic with the lists of losses of the German 5th air fleet operating there, corrected by Western historians .

Table 286

Downed shots counted downed Downed
German no. | Date of battle of planes of planes to
Soviet pilots | in fact

07/23/1941
01/04/1942
03/04/1942
04/15/1942
04/29/1942
05/15/1942
05/19/1942
05/26/1942
06/22/1942
07/01/1942
07/18/1942
09/02/1942
09/15/1942
10/30/1942
12/27/1942
03/13/1943
03/23/1943
03/27/1943 (1)
03/27/1943 (2)
03/31/1943
04/19/1943 22
04/29/1943
May 23, 1943
24 08:05.1943 25
05.13.1943

05/19/1943 26
06/01/1943 27
28 06/21/1943
29 06/23/1943 30
04/12/1944
31 06/15/1944
32 06/17/1944 33
06/18/1944
34 06/19/1944
35 06/28/1944 36
07/04/1944
37 07/17/1944
38 08/17/1944 39
08/23/1944 40
09/29/1944 41
10/09/1944
42 10/22/1944
43 10/23/1944

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The ratio of officially scored and actually won aerial victories

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The reconciliation results are all the more indicative because the sample is quite random: Yu.V. mixed (from November 1942 - 2nd Guards Fighter) air regiment of the Air Force of the Navy and P.S. Kutakhov, who served first in the 145th (from April 1942 - 19th Guards), and then in the 20th Guards Deisky Fighter Aviation Regiment.

And here are the official and actual results of another 13 air battles in the Arctic, described by Yu.V.

twaffe. Of the pilots who were credited with victories in these battles, the German ones belonged to the 6th and 7th detachments of the specified group, and the Soviet ones belonged to the 19th Guards, 197th Mui and 837th Fighter Aviation Regiments of the Air Force of the 14th Army of Karelsky front, the 768th and 769th Fighter Aviation Regiments of the 122nd Air Defense Fighter Division and the 20th and 78th Fighter Aviation Regiments of the Air Force of the Northern Fleet.

Table 387

downed
Soviet
aircraft
into reality

09/15/1942
09/27/1942
09/27/1942
10/30/1942
01/09/1943
03/10/1943
03/12/1943
04/13/1943

12
3
4
5
6
7
8
9

Counted Downed Counted downed downed
German downed Soviet
aircraft aircraft aircraft aircraft
Soviet | in fact- | German | in fact pilots NOST pilots

Official ratio
tally counted

and really won air victories

As we see; the Germans also overestimated the real number of their victories (data on Soviet losses are also verified according to several Soviet sources).

And so it always is, no matter what air battle, no matter what air battle we take on the Soviet-German front. Let's take a few more examples.

On June 30, 1941, 114 air victories were entered into the combat accounts of the pilots of the 51st Fighter and III Group of the 53rd Luf Twaffe Fighter Squadron. According to the Soviet summary of the losses of the material part of aviation on the Western Front (in the zone of which the named squadron and group operated), only 82 Soviet aircraft were shot down that day. At the same time, German anti-aircraft gunners88 claimed 5-8 of them, so that the real number of victories of German fighter pilots is in the range of 74-82, and the official figure is overestimated by 1.4-1.5 times.

On July 10, 1941, according to German data, pilots of the P group of the 3rd fighter squadron shot down 9 heavy bombers TB-3 in the Zhitomir region; the Soviet side confirmed the loss of only 7 of these ships ??.

After five air battles that took place on October 24–29, 1941 over the Southwestern Moscow Region (in the Naro-Fominsk-Vorob'i-Kamenka area), the pilots of the 16th Fighter Aviation Regiment of the 6th Air Defense Fighter Aviation Corps were credited with 31 downed enemy aircraft. From non-German documents it is clear that only 4 or 5 vehicles were lost in the area on the indicated days. Consequently, the Soviet side exaggerated the achievements of its pilots by at least 6.2-7.8 times (some of the planes lost by the Germans could, after all, have been shot down by anti-aircraft gunners).

August 12, 1942 25 aircraft of the 8th Air Army of the South-Eastern Front - 8 Il-2 attack aircraft from the 686th assault air regiment of the 206th assault air division and 17 Yak-1 and LaGG-3 fighters from the 235th and 269th th fighter aviation divisions - were attacked over the Don airfields Olkhovskoye and Podolkhovskoye by German Messerschmitt Bÿ109 fighters from the 3rd fighter squadron "Udet" and [groups of the 53rd fighter squadron "Peak As". According to German data, 33 ($1c!) Soviet aircraft were shot down in this battle, and according to Soviet data, only 15 (all 8 attack aircraft and 7 fighters). In turn, the Soviet fighter pilots were recorded 3 downed Messers, and the attack aircraft - 2, while, according to the Germans, only one Bÿ1090-2 from the Udet was shot down ?!. Thus, the German side overestimated the number of victories of their fighter pilots in this battle by 2.2 times, and the Soviet side by 3 (if not an infinite number of times).

On May 30, 1943, La-5 fighters from the 32nd Guards Fighter Aviation Regiment fought against Ne! bombers in the area of Lake Ladoga. 11 from the 53rd bomber squadron of the Legion Condor and covering them with BE1 09 from the 54th fighter squadron of the Grünhertz. German fighter pilots were credited with 13 shot down

of the aircraft in these battles, and the Soviets - 18. A check according to the documents of the opposite side shows that in reality both the 32nd Guards and the Germans lost only 3 shot down (three La-5s, two He!111 and one VEYa09S 2)72 ; in other words, the real results of the German pilots were overestimated by a factor of 4.3, and those of the Soviet pilots by a factor of 6...

| On June 1944, in the Vulturula area in Romanian Moldova, a group of Bell R-39 "Aerocobra" fighters from the 100th Guards Fighter Aviation Regiment of the 9th Guards Fighter Aviation Division of the 5th Air Army of the 2nd Ukrainian Front shot down, according to official data, 4 attack aircraft'E \! 190 from the 10th assault squadron; German documents confirm only one Soviet victory...93

In general, in the world aviation history literature it has long been recognized that the final official data on the number of victories of fighter pilots of the Second World War - no matter which army they belong to - inevitably turn out to be overestimated. The reason for this is the FOX:

a) the specifics of the air combat of those times;

6) the absence on the fighters of those years of means of objective control of the results of firing and

c) the psychology of a fighter pilot.

As already noted, the air combat of the Second World War proceeded at high speeds and was therefore characterized by instantaneous changes in the situation. We continue to quote twice Hero of the Soviet Union M.P. And just a few seconds to make a decision. The pilot's thought must be ahead of the speed of the aircraft, otherwise you won't survive in combat...'4 does it fall at all? Such an opportunity with a guarantee was provided only by battles that took place "one on one" - and, moreover, in a fairly "calm" area. For example, junior lieutenant of the 42nd fighter regiment G.I. German, having hit a single Henschel H $ 126 reconnaissance aircraft in the Bryansk region on the morning of August 17, 1941, was able to calmly descend and make a circle “above the burning broken enemy aircraft”. Having fired the second Henschel in the evening of the same day, Herman again sent his MiG-3 after the falling reconnaissance. “(G ...] Having broken through the clouds,” the pilot recalled, “I saw an enemy car, behind which a trail of fire stretched, then I saw an explosion, the flame of which brightly lit up the earth”?

However, the vast majority of air battles of the Second World War were group skirmishes - proceeding as M.P. Odintsov described. Sometimes the opportunities for reliable visual fixation of one’s victories

pilots were provided here too - for example, in the event that the affected enemy aircraft exploded or

fell to pieces immediately after being hit. Or with a favorable combination of a number of other circumstances. So, after the battle on May 17, 1942 in the area of Boulogne - Calais (France), the commander of the III group of the 26th fighter squadron "Schlage ter" Captain J. Priller reported that, having hit the English fighter Supermarine "Spitfire E MK.U" with a burst , he “dived after him through the clouds and saw how he fought”96. The German pilot could afford it: his "Focke-Wulf E \! 190A-2" developed such a speed on a dive that it became inaccessible to the Spitfires. In addition, as can be understood from Priller's report, even having descended, he did not lose superiority in height over the rest of the British fighters, which were going much lower, and therefore did not lose initiative in battle. (Height reserve is a reserve of potential energy that can be turned into kinetic energy by going into a dive and gaining greater speed due to this, which, in turn, allows you to dictate your will to the enemy in battle.) However, much more often in group air battles there were situations similar to the one described by the former pilot of the 767th Fighter Aviation Regiment T.D. And at that moment “one hundred and nine” is on your tail [ÿ1109. - A.S.], but the distance is (still) respectable, and he does not open fire on you. Well, will you pursue your prey? Of course, you will engage in battle with the pursuer”?7. G. Baevsky also writes about the same, recalling how on May 8, 1943, he, a pilot of the 5th Guards Fighter Aviation Regiment of the 207th Fighter Aviation Division of the 17th Air Army of the Southwestern Front, attacked in the Privolnoye area (near Lisichansk) Focke-Wulf E \! 189 scout: “I see my hits on the left plane, engine, cockpit ... it seems [highlighted by me. - A.S.], lit. And at this time on the radio I hear the cry [of the squadron commander of the guard captain I.P. - A.S.] Laveykina:

— From above behind "Messer"! Leave!

Where did he come from? It seems that there were no “Messers” nearby, I missed it again ... The track is on the left. I sharply give my foot, the handle on myself, full throttle [...|. It's dark in the eyes, the plane is performing

a few turns to the right up [...]|. There are already many enemy planes in the air. [...] There is some kind of whirlwind around! [...]

After landing, I was surprised by the question: “Ge fell attacked by you“ frame ”[Soviet nickname E\\189. — A.S.]?” And hell knows! Was there time in such a battle to notice me-

one hundred where she fell, watch her fall. It was like death, they would have shot me down immediately! 8

“Yes,” adds T.D. Gusinsky, “even though at what height the battle took place. You will not pursue the victim, if, to our misfortune, the superiority (on the side) of the enemy [in the case of J. Priller, we recall, was the other way around. - 4.S.], and the loss of height is like death"??.

All these circumstances prevented the pilot from following the fate of the plane he fired upon so often that the veteran of the 768th Fighter Aviation Regiment, B.P. Any pilot [...] he does not watch how he falls, where he falls, he looks first of all at the situation in the air...” 100. A.E. Shva Revi V.A. Tikhomirov, who fought: the first - in the 31st, 236th, 111th Guards and 40th Guards Fighter Aviation Regiments, and the second - in the 12th Fighter Aviation Regiment of the Navy Air Force. ‹“(...] I almost never saw the plane I shot down fall,” Shvarev emphasizes. ...] It’s hard to just keep track of the downed in battle,” testifies Tikhomirov, “the main thing here is not to miss the combat-ready one, otherwise, while you’re looking, they’ll give you back!” 01.

So, most often a pilot in an air battle only had time to see that the plane he had fired at “tipped over and goes down in PIK”, that he “seems to be on fire”, etc. At the same time, he naturally wanted to think that the attacked man had been shot down - especially since the pilot usually saw the hits on him clearly. “In battle,” T.D. Gusinsky points out, “you see your turn, where it falls”! 02. (“When you get on a plane, you can immediately see something like a sheaf of sparks or lightning,” explains V.I. Klimenko, a veteran of the 1st Guards Fighter Aviation Regiment.

what distance, - adds S.D. Gorelov, who fought in the 165th and 13th (later - the 111th Guards) fighter, - the struck aircraft necessarily makes somersaults in the air! 03.) And the pilot reported about "giving a roll without overload [i.e. without changing direction of flight. - A.S.]”, “gone down”, “seems to be burning”, etc. the plane as if it had been shot down! In this regard, the statement of B.P. Nikolaev, partially cited above, seems extremely characteristic. In quoting him, we deliberately omitted part of the second sentence; its full beginning sounds like this: “Any pilot sees that he shot down [emphasis mine. — A.S.], but he does not watch how he falls, where he falls...”! achieved a crash or forced landing of the affected aircraft”)!

And meanwhile, “rolling and going down, in a peak”, the enemy aircraft could not receive fatal damage at all, and its pilot only simulated loss of control (or his own death) in order to avoid pursuit and re-attack. If the affected aircraft entered a dive without a roll, the situation could be even simpler: the car again retained its ability to stay in the air, and the pilot simply demonstrates one of the most common ways to break away from the pursuer - diving. There could be no guarantee of a downing even if the attacker saw that the plane he had fired upon was smoking. The jet of smoke could indicate not a fire, but an attempt to break away from pursuit at an increased speed by turning on the engine booster device. After all, when the engine was running in forced mode, black smoke began to be emitted from the exhaust pipes - the fuel did not have time to completely burn out in the cylinders ... But even if the attacker really set fire to the enemy aircraft, this latter could still knock down the flame with sharp maneuvers - how did it happen for example, to Lieutenant I.N. The 3rd Fighter Squadron of the Luftwaffe in the battle in the Gelendzhik region 18 ap

In April 1943, Ettel managed to land at his airfield - although Sergeant D.D. Tormakhov from the 269th Fighter Aviation Regiment of the 236th Fighter Aviation Division of the 5th Air Army of the North Caucasian Front (which I only saw that the "German" was smoking) ... Nevertheless, pilots - at least Soviet ones - sometimes went to a direct forgery, accurately indicating in their reports the places where the planes "fell", the fall of which they actually did not they watched and could not watch, because they never collapsed to the ground! For example, in the operational reports compiled on the basis of similar reports after the battle on June 21, 1943 in the area of the Beloe More station (south of Kandalaksha), it appeared that ÿÿ109, shot down by the guard captain P.S. Kutakhov from the 19th Guards Fighter air regiment of the 258th mixed air division of the 7th air army of the Karelian Front, fell “to the west of the railway. - A.S. | 1d [road. - A.S.] siding number 11 "; two “Messers” shot down by fellow soldiers of the Kutakhov Guards, Lieutenant Ryabov and Guards, Junior Lieutenant Kompaniychenko, “west of the Nyam-Ozero station”, and the victim of Sergeant Major Zyuzin and Senior Sergeant Dzitoev from the 768th Fighter Aviation Regiment of the 122nd Air Defense Fighter Aviation Division - in 5 km to the west of the Ruchi railway siding! 05. In reality, then not four, but one German plane fell to the ground - ÿÿ109ÿ (-2 captain G. Erler from the P group of the 5th fighter squadron. About this

testify not only to the German data on the losses of the Eismeer squadron, corrected by historians, but also to an independent Soviet source. “In aerial combat with our is-

demanding aviation shot down one Me-109. The pilot escaped by parachute, ”it was indicated in the combat report sent the next morning, June 22, 1943, by the headquarters of the 33rd separate anti-aircraft artillery battalion, whose soldiers watched the fight from the ground! 6.

No.

True, in order for the air victory to be officially counted, only the report of the pilot claiming this victory, according to the rules that existed both in the USSR and in Germany, was not enough; still needed

statements from other sources. So, the Vluftwaffe had to certify the air victory declared by the pilot:

a) pilots - eyewitnesses of the downing of an enemy aircraft;

6) a film of a photo-movie machine gun that recorded the results of firing from an airborne weapon, and

c) ground observers.

However, in practice, the third paragraph was, apparently, optional. After all, German fighter pilots conducted most of their air battles over enemy territory; this was determined by the very principles of the use of German fighter aircraft, which prescribed not to wait for the appearance of the enemy, but to look for him ourselves. Therefore, the German aspirants to air victories had to seldom have confirmation of ground observers. However, even if such confirmations were available, they could turn out to be false. It is enough to point to the already mentioned air battle on August 12, 1942, which took place directly above the German airfields Olkhovskoye and Podolkhovskoye. Here, as Al.Bolnykh rightly notes, “there was no shortage of ground-based observers (moreover, qualified observers)!”07. Nevertheless, the German pilots after this battle were considered 33 downed aircraft - although only 25 aircraft participated in the battle from the Soviet side ...

I could not reliably confirm (or refute) the statement about the air victory and the photo-movie gun. In fact, turning on at the moment of opening fire, it worked for a few more seconds after the shooting stopped - in order to fix the further behavior of the fired aircraft. But in a group battle, the pilot could not leave his victim in the lens during these few seconds: in order not to be hit himself, he must immediately begin to maneuver after firing!

just getting into it meant making the same mistake as the pilot, putting an equal sign between the concepts of "hit" and "shot down". (It was carried out, for example, by those American aviators who, having studied the film shot in battle

On March 20, 1943, off the coast of Tunisia, it was concluded that the pilots of their 82nd Fighter Group had shot down 11 German and Italian aircraft. In fact, only two eyes were shot down! 99.) The film of a machine-gun film could serve as a reliable confirmation of the downing of an aircraft only in those cases when the hits led to an instantaneous explosion or instantaneous destruction of an enemy vehicle in the air.

As for the eyewitnesses - participants in the air battle, some domestic authors emphasize the interest of these persons in confirming even the false reports of their colleagues about the air victories won by those! Readily confirming every other report, they apparently believe that the German pilot gained hope that his own, even unreliable, would always be confirmed in the same way ... GF. collusion between pilots of one pair or one flight, when they confirmed to each other the victories they imagined. This is the only way to understand this author when, mentioning the fact of such a conspiracy that took place in August 1942 in the 4th detachment of the P group of the 27th fighter squadron in North Africa, he concludes that "ordinary postscripts of victories" experts"-hunters [aces, engaged in" free hunting "over the territory of the enemy. - A.S.] looked like child's play! !1. However, there were no other cases of deliberate fraud in the Luftwaffe fighter aircraft during the entire Second World War!!?. And, I think, not because they were not able to open them. Other pilots of the detachment (or group) would certainly have done this - it was no coincidence that in the 27th squadron the colleagues of the swindler pilots were the first to suspect something was wrong. The Luftwaffe took these things extremely seriously. When in the summer of 1943 the commander of the III group of the 52nd fighter squadron, Major G. Rall, found out that Lieutenant F. Oblezer from the 8th detachment doubted the reliability of the air victories, which were read to Lieutenant E. Hartmann from the 7th detachment, he Immediately took steps to eliminate once and for all

any possibility of false rumors - he ordered Oblezer to fly out as part of Hartmann's link as an observer. (After the departure, Oblezer admitted that his suspicions were unfounded ...!! 3) Soviet memoirists could speak contemptuously of "sporting interest",

who supposedly only inspired the “Hitler youth” in air battles!14 (which, of course, is not true), but this interest (and it really was) served as a reliable barrier to fraud, forcing German pilots to jealously monitor compliance with the rules of the game ...

In general, Soviet and modern Russian authors educated on their works have demonstrated and continue to demonstrate a complete lack of understanding of the psychology of the enemy (more precisely, an unwillingness to understand and take it into account). The realities of Soviet life (which really cannot be imagined without additions) are transferred with no hesitation to the German army of the Second World War, the features of the Russian mentality - to the German mentality ... Meanwhile, according to the recollections of many Germans who were in Soviet captivity, some one of the most unusual features of Soviet reality for them was just window dressing and postscripts!!15

Trying to prove that German fighter pilots widely practiced fraud, [. during the general retreat of the Germans in the East? (The well-known test pilots, front-line soldiers G.A. Baevsky, A.A. Shcherbakov and S.A. Mikoyan are also perplexed about this! 16.) And why, after the transfer of German aces from the Eastern Front to the Western or to the air defense of Germany did their accounts begin to grow much more slowly? Is it not because the retreat of the German troops increased the possibilities for attributing to themselves obviously not won air victories, and the fight in the air over [Germany - reduced? Indeed, in the first case, the reports of the pilots and the confirmations made by their colleagues could not be verified: the air combat area, as a rule, quickly passed under the control of the Soviet troops. And in the second case, all downed planes fell on German territory, and deliberately false reports can

but it was therefore easy to refute...!!7 However, the facts noticed by GF Kornyukhin have a much simpler explanation. After 1942, the Germans began to shoot down more Soviet aircraft because the number of Soviet Air Forces at that time was continuously increasing, and the number of German fighters on the Eastern Front was marking time (see Tables 4 and 6 below). The Germans simply had a lot more targets in the air! And the relatively small number of air victories won by the German aces of the Eastern Front in the West is explained by the much less favorable conditions for the Germans in the air war. In the West, they had to fight huge formations of heavy bombers flying in close formation and creating a dense curtain of fire around them from hundreds of heavy machine guns, as well as huge “herds” of American and British fighters, whose pilots were much more trained than those of the bulk of the Soviet pilots. Eloquent confessions of one

one of the leading aces of the Luftwaffe, H. Philip, made by him soon after the transfer in April 1943 from the 54th fighter squadron that fought in the East to defend the skies of Germany | stung, or with the English "Spitfires" [in the "battle for England" in 1940 - A.S.] it was a joy. And no one thought at the same time about the meaning of life. But when seventy huge “flying fortresses” [American bombers Boeing B-17. — A.S.], your whole sinful life flashes through your memory in a matter of seconds”!18. “Anyone who flew in the air defense of the Reich sooner or later “burned out,” sums up the ace of the Eastern Front V. Lipfert, who almost got into this air defense in May 1944. “The same could have happened during the battles with the Russians, but here there were much higher chances of returning home in one piece!”19.

In general, the opinion that the pilots of the Luftwaffe quite often confirmed for mercenary purposes (with or without collusion) the deliberately false claims of their colleagues for air victories - this opinion must be recognized as completely unfounded. Another thing is that the guarantee is reliable

sti air victory confirmation of other participants in air combat really are not. And they cannot be: after all, these other pilots were by no means always in better conditions for observation than the pilot who carried out the attack. Often, they were just as unable to follow the further behavior of an aircraft fired upon by someone, as was the one who fired at it - and in the same way they assured themselves that the aircraft had been shot down after all - once it fell down, went into peak, puffed

AND SO ON.

So, the German requirements for confirming the fact of an air victory by no means guaranteed the reliability of all victories officially credited to fighter pilots. And the Soviet ones?

Photographic machine guns on Soviet fighters - and even then not on all of them - appeared only at the end of the war (and in a number of cases the regimental authorities did not want to organize their use - loading, developing films, etc. 29), and the list of required confirmations usually consisted of two points:

a) reports of pilots who witnessed the downing of an enemy aircraft and

6) written confirmation or physical evidence of the downing of the aircraft, provided by ground observers or inspectors.

Confirmations of other pilots - as we just

found out - could often be false. And they began to be demanded only in 1942. As for the confirmations of Soviet ground observers, in our literature they are considered a source, one hundred percent reliable. In this regard, many domestic authors (as well as many front-line pilots) often emphasize the particular exactingness allegedly manifested here by the Soviet aviation command. It is alleged that, unlike the Luftwaffe, in the Soviet Air Force an aircraft whose fall was not confirmed by ground forces was not counted as downed - and that all victories officially counted by the Soviet

to the German fighter pilots, are therefore - in contrast to those credited to the Germans - one hundred percent reliable. And that the total number of Soviet air victories is even an underestimate: after all, the ground troops were not able to confirm the shooting down of those aircraft that fell on the territory controlled by the enemy...!2!

The facts, however, show that the Soviet ground forces often carried out their duties of confirming air victories in the highest degree irresponsibly. For example, after an air battle that took place on April 19, 1943 in the area of the polar airfield Vaenga-2, VNOS posts (air surveillance, warning and communications services) located near Murmansk and the 72nd and 542nd anti-aircraft artillery batteries of the 190th anti-aircraft -ar of the Tillerian regiment confirmed the reports of the pilots of the 2nd Guards Fighter Regiment of the 6th Fighter Aviation Brigade of the Air Force of the Northern Fleet about the downing of four German aircraft. Four cars really fell to the ground then, but only one of them was German - BE1090-2 of Ober-Sergeant R. Muller from the I group of the 5th Fighter Squadron, and three others (two Hawker Hurricane and Airacobra fighters) belonged to the Soviet Air Force!22. But the Vnos and anti-aircraft gunners, seeing the fall of four planes, did not begin to figure out whose they were, and reported by telephone about all four as German! After all, “according to an unwritten rule, any unidentified aircraft was considered enemy! Also, the human factor cannot be discounted... After all, every Soviet person wanted not ours, but the hated plane with crosses to fall to the ground ...! moreover, as VNOS observers “usually they sent Red Army soldiers fit only for non-combatant service”! 2“. (‹[...] These are not VNOS posts, but misfortune, - Colonel S.P. Denisov complained back in 1937. - A single-engine U-2 flies, as they say: a 3-engine flies, tail first, etc. "! 25.) Meanwhile, the entry "Confirmed by VNOS posts" in the daily operational reports of air connections operating in the Arctic appeared precisely on the basis of these telephone

reports made by posts immediately after the battle! (Later, the post sent a search group to the crash site, but the report of its commander was no longer sent to the aviators, but settled at the headquarters of the Murmansk air defense region.)

In addition, in many cases, the Soviet ground troops, "going towards" the pilots, deliberately misinformed the aviation command. So, after the battle of Yak-7b and Yak-9 from the 767th, 768th and 769th Fighter Aviation Regiments of the 122nd Air Defense Fighter Division with Vÿ09S from the III group of the 5th Fighter Squadron in the Murmansk region in January 1944 Ground forces confirmed the destruction of three Messerschmitts by submitting three downing reports drawn up by the commanders of military units 35562, 39264 and 35563. the other two received material evidence: plates with serial numbers of the downed aircraft (109552 and 109553) or their engines (No. 50557 from aircraft No. 109552). In addition, ground inspectors (apparently, not from the ground forces, but from aviators) reported the discovery of material evidence of the shooting down of two more B# 109s: they removed the parachute passport and the plate with serial number 109593 from one, and from the other there were “wing console, compass and other burnt parts of the aircraft” and, again, a plate with a serial number (the latter, however, was not indicated in the report). Finally, the head of the communications post and the railway workers from the Loparskaya station confirmed the fall of another, sixth Messer. However, it is clear from German documents that on that day the Germans lost only two B{109 in the Arctic - Lieutenant W. Klaus and non-commissioned officer W. Strobel!!26 We emphasize that this figure was not taken from the German report on a specific battle (such documents, as we have seen, sometimes underestimate their losses), but established by analyzing several German sources ... Thus, the evidence presented by the ground checkers for at least two cars and at least one report of the downing were false. It is unlikely that this misinformation was the fruit of a conscientious delusion (can I really check

The guards were not able to distinguish the remains of a plane that had just crashed from the wreckage of a previously shot down one - probably already covered or powdered with snow?); most likely, the lie would have been conscious. (Unfortunately, Yu.V. Rybin, who described this collision, does not indicate the serial numbers of the aircraft of Klaus and Strobel and does not report when the aircraft whose numbers are given above were destroyed.)

Another such case is known - when in July 1941 the commander of the Leningrad air defense fighter group, Colonel S.P.

Nant Ospishchev from the 19th Fighter Aviation Regiment defeated the Junkers Ll88 reconnaissance officer attacked by them on July 8 in the area of Krasnoye Selo - Lake Velye. It is not known where these “trophies” were taken from, but, according to German documents, the opponent of Chudinovsky and Ospischev did not “fell in the area of Lake Samro”, but knocked out the flames, dived away and returned to his airfield ...!27

And the commander of the 4th Air Army of the North Caucasian Front, K.A. Vershinin, in the summer of 1943, directly convicted the ground forces of deliberate lies. "(...] According to the same downed enemy aircraft," he reported, "certificates are given by ground troops to representatives of several formations" of the 3rd Fighter Air Corps!? a former officer of the 85th Guards Howitzer Artillery Regiment O.D. or the beginning of 1945 on the 2nd Belorussian Front." He took out a pint and some paper from the field bag. He asks to sign and stamp. There is evidence that they shot down a German plane that day. Noya himself saw that the plane was was shot down by our fighter. I had, as they say, to give him a "turn from the gate." The captain was not very upset. He only said: "Not everyone is so principled. I'll find another!" probably found by aviators ...

Actually, this is to be expected. The whole of Soviet life was based on fraud: the desire to show that the construction and development of an artificial and little viable society, the adjustment of life to the Marxist-Leninist scheme was successful - this desire inevitably forced us to lie in everything - from political declarations and newspaper editorials to memoirs. and production reports. The commanders of the Red Army (since July 1943, they were called officers) were also accustomed to eyewash: they were never some special, closed caste of Soviet society ... “An order for the army,” recalls, for example, V.M. Ivanov, who served in the summer of 1942 as the head of intelligence of the 322nd artillery regiment of the 117th rifle division of the 3rd shock army of the Kalinin Front, demanded to report on the results of the shooting, for each shot. And how was it to see the results of the shooting, if there was a forest around us and only small open areas of the terrain were visible from the OP. [...] With tacit consent, everyone learned to lie well. [...] If we calculate in total according to the reports how much manpower has been dispersed and destroyed, how much means have been suppressed and destroyed, then it would turn out that the German army has long ceased to exist. [...] We calculated our losses more correctly. And that is not always the case. Sometimes underestimated, and sometimes exaggerated. How it was more profitable to present to the authorities” 130. But

The childhood of the writer V.V. Bykov, a former artillery officer: “I remember the incident during the offensive, when my gun crew was next to the funnel of the battalion commander, Captain Andreev. [...| Sitting in a funnel with orderlies and signalers, he led the battle for a nearby village. The regiment commander constantly demanded over the phone reports on the progress of the battalion, and Andreev, sipping from his flask, now and then cheerfully answered: “I’m advancing successfully ... I’m trying to cling to the northern outskirts ... I’m already hooked ... I’m shooting down the outposts” . At the same time, his companies calmly lay in front of them in a bare field, under rare mortar fire from the village [...]

Andreev's talion. When it got dark, the battalion commander met the regiment commander there and reported to him about a successful attack, which was not in sight. The regimental commander, it seems, was left free. Probably - I think so - he himself reported in a similar way above, to the division, and those to the corps. Such was the unspoken order that suited everyone!

As for the requirements for the availability of evidence from ground observers or inspectors, formally they were indeed stricter in the Soviet Air Force than in the Luftwaffe. For example, since 1944, an air victory had to be counted only if a photograph of a crashed aircraft was presented. In the air defense fighter aviation, this order was established as early as November 1942132. And at the beginning of 1943, the commander of the 16th Air Army, S.I. Rudenko, demanded that a plate with a serial number taken from a downed car be presented!

However, between the publication of orders, instructions, rules, laws, etc. and their execution in the Soviet Union in general and in the Red Army in particular was, as is well known, "a huge distance" ... practice has been largely ignored! Quite often: as the cases described below show, any researcher who begins to study in detail the documents of the Soviet aviation units and formations of interest to him or collect the memoirs of front-line pilots immediately encounters such facts.

Firstly (as is clear from the report by I.I. Kozhemyakoo about the practice of his 107th Guards Fighter Aviation Regiment of the 11th Guards Fighter Aviation Division of the 2nd Air Army of the 1st Ukrainian Front), there were still units where at the end wars shot down began to be counted on the basis of only one film of a photo-cinema machine gun!33.

Secondly, in practice they often did without confirmation.

visions from the ground, some reports of eyewitness pilots. So, according to the veteran of the 1st Guards Fighter Aviation Regiment V.I. Klimenko, in 1942-1943, if the pilot

reported that the plane he shot down fell behind the front line, and it was not possible to get confirmation of this from the partisans, then the downed one was counted on the basis of confirmations alone of other pilots of the group or crews of attack aircraft covered by fighters. A.E. Shvarev, who fought (in the 31st, 236th, 111th Guards and 40th Guards Fighter Aviation Regiments) until the spring of 1945, reports the same thing: if, according to the report, the downed man fell behind the line front, "here they already believed the words of the pilots." And in the 145th (then 19th Guards) fighter unit operating near Murmansk - according to the one who fought in it in 1941-1944. I.D. Gaydayenko - this was done in cases where the pilot reported the fall of a downed man into the sea!34. In the 11th Guards Fighter Aviation Division in 1943-1945. the rules were even more liberal. True, in its 867th (later - 107th Guards) Fighter Aviation Regiment - as I.I. Kozhemyako also reports - according to the report of a witness-pilot alone, a victory was counted only if the witness had a good reputation. But in the 814th (later - the 106th Guards) fighter - as is clear from the memoirs of K.G. Zvonarev who fought in it - confirmation of the ground troops was generally requested only if the alleged victory was won during the "free hunting ", but usually got by with confirmations of the crews of the IL-2 (which the regiment was mainly involved in escorting)!35. Finally, N.P. Tsygankov, answering the interviewer's question about the adopted in 1942-1944. in the 21st Fighter Aviation Regiment of the Navy Air Force, the rules for counting shot down, did not mention at all about confirmations from the ground; as follows from his words, only the certificates of other pilots of the group or all the same crews of escorted attack aircraft were required to count!36. But the 21st fought not so much over the Baltic Sea as over land ... Thirdly, in practice, those shot down were often counted without any confirmation at all! “In the Soviet Air Force in the first period of the war,” T.F. Kornyukhin assures, not wanting to see the difference between paper and life, “air victories for

were read to the pilots only on the basis of a written

evidence of ground troops! 37. However, in the 6th extermination

In July 1941, the air defense air corps managed not only without confirmation from the ground, but without any confirmation at all - counting the victory on the basis of the pilot's report alone! More precisely, on the basis of the pilot's mere assumption that he shot down a German plane! So, after the battles carried out by the pilots of the 34th Fighter Aviation Regiment on the night of July 22, 194] over the South-Western Moscow Region, in the Alabino-Na-ro-Fominsk-Borovsk area, the downed man was recorded to Captain M.G. Trunov insofar as because the bomb he fired at

the Junkers L188 barber "has dropped to low level", to junior lieutenant A.G. Lukyanov - since the La88 (or the Dornier Oo17 bomber similar to it), which he hit with machine-gun fire, "has dropped sharply", and to junior lieutenant N .G. Shcherbina - and only because he “fired two rounds at a twin-engine bomber from a distance of 50 m”, which immediately after that was lost to sight of him (!) ... Reporting on these battles to the corps commander, the commander of 34- Major L.G. Rybkin each time specially stipulated that “there is no confirmation”, that no one saw the fall of the fired aircraft, but the victories were still counted !! ... “The examples are quite typical,” emphasizes D.B. Khazanov, who worked with the documents of the 6th Air Corps, “and they can be continued”!139.

On July 6, 1941, Senior Lieutenant S.V. Tyutyunnikov from the 19th Fighter Aviation Regiment of the Leningrad Air Defense Fighter Group was also credited with the victory on the basis of his report alone on the fall of the Finnish Blenheim bomber attacked by him (in fact: that was only damaged, not shot down)“, |

Let us point out (following Yu.V. Rybin) the last battle of the famous B.P. Safonov from the 2nd Guards Mixed Aviation Regiment of the Air Force of the Northern Fleet, which took place on May 30, 1942 over the Barents Sea. Three L188s, allegedly shot down by the Guards by Lieutenant Colonel Safonov in this battle, were entered into his combat account on the basis of his oral report alone (or rather, two vague phrases, not

broadcast by the pilot on the radio: “I fucked two” and “I beat a third of him”141). According to reports alone - only written ones - they counted one downed "Junkers" and two other participants in this battle - the guards captain P.I. There were no aerial witnesses of any of them - all three fought independently and did not observe each other's actions. And ground (in this case, ship) observers directly refuted the pilots' statements about victories! The commander of the destroyer battalion that was being fought over reported that his subordinates recorded the fall of only one aircraft - the Tomahawk fighter! (in fact, it was almost no different from him outwardly "Kitty hawk" shot down in this battle Safonov). However, “above” this did not bother anyone ... Moreover, the third La88 Safonov was considered for even without his report: after all, he only reported that he was attacking this plane - but not that he had shot it down! (By the way, from the lists of losses of the 5th Air Fleet of the Luftwaffe, refined according to several German sources, it is clear that on May 30, 1942, the enemy lost not five, but only one L188 over the Barents Sea - Lieutenant 3.Sharf from P group 30 th bomber squadron! 43.)

We observe the same loose treatment with the "hard" rules for counting air victories in the second period of the war. For example, B1109, entered after the battle on April 19, 1943 mentioned above, on the battle account of fellow soldier B.P. Safonov of the guard captain Z. GSorokin, was confirmed only by the testimonies of other participants in this battle; the lack of confirmation from the ground was again ignored by the commanders!! 44 of the Guards to the senior lieutenant that A.A. in the area of the city of Sumy, E\\!189 was generally counted according to his report alone !!4> An even more striking picture is drawn by the report of the senior officer of the General Staff at the Voronezh Front, Colonel M.N.

Kursk Bulge July 4-23, 1943 “In all likelihood,” Kostin pointed out, “data on 811 shot down [by the 2nd Air Army. - A.S.] enemy aircraft are exaggerated, because information was obtained from the reports of the pilots, was not controlled either by the commanders of formations and units, or by headquarters [i.e. authorities responsible for requesting confirmation from ground forces. - A.S.] "1%6. However, all these 811 aircraft to the pilots, apparently, were still counted! The Vel report of Kostin is dated August 23, 1943; in the month that had passed since the end of the defensive operation, the reports of the pilots could be checked and rechecked, especially since the territory over which most of the July battles took place was again occupied by Soviet troops by August 3. And yet, by August 23, no other figure had appeared - which means that all the claims of the pilots for air victories were satisfied without verification. Thus, we are faced with the fact of violating the rules for counting air victories on the scale of an entire air army ...

Finally, in the Soviet Air Force there were also those very cases of deliberate eyewash for which the Luftwaffe is accused of us! Of the ten pilots-front-line soldiers, who at the beginning of the twentieth century. the question was asked: “Were there any additions to the accounts of air victories?”, Only four gave an unambiguously negative answer - V.I. Klimenko, G.V. Krivosheev, S.Z. Bukchin and B.A. Shugaev (respectively from the 1st, 31st and 129th Guards and 66th Fighter Aviation Regiments). A.E. Shvarev has already vouched here only for his brother-soldiers (and he was at a loss about others: “The devil knows”), his brother-soldier in the 111th Guards Fighter S.D. Gorelov also gave a cautious answer (“It's hard to say”)147. L.3. Maslov from the 31st Fighter (who also rejected suspicions about his fellow soldiers) In general, he already gave an almost positive answer: “Of course, there could well have been registrations in other regiments. In some cases, it cannot be verified. [...| "He chased over the mountains, he chased

Xia and shot down ... "Who here will confirm? Everything happened!”48. And three answered unequivocally positively! “There were,” V.A. Kanishchev, who fought in

86th Guards Fighter Aviation Regiment in August - September 1943 and 1944-1945 - and named the name of Major A.N. Dergach (“Why am I talking? Misha Minakov [M.A. Minakov. - A.S.], that story shaft”)149. “There were,” said I.I. Kozhemyako. “Not often, but it happened” (and also gave an example when, after one of the battles in the summer or autumn of 1944 over the Sandomierz bridgehead across the Vistula, he refused to confirm to his partner the victory declared by him, but not actually won, and the commander of their 107- 1st Guards Fighter Aviation Regiment counted this “linden” after all)150. And B.S. Dementeev, who fought in 1943-1945. in the 101st Guards Fighter, could already name several people from only one of his units: “In general, if we talk about postscripts, then, of course, they were, but only a few people in the regiment were engaged in them [and this was considered an achievement! - A.S.]. They were known, but they couldn't do anything." (True, S.S. Ivanov, cited by Dementeev as an example, declared his shot down, though not by him, but really shot down planes - the place of the fall of which he, deliberately keeping aloof from the fight, carefully spotted and which he then reported - indicating the exact places of fall!—how many shot down by him. In other words, his lie was not reflected on the general combat account of the Soviet fighter aircraft—which is of interest to us now. in reality, victory was not achieved ...! 51) I.D. Gaidaenko also spoke about the case of deliberate fraud (without waiting for a question). According to him, he personally observed how, in December 1941, the pilot of the 609th Fighter Aviation Regiment of the Air Force of the 32nd Army of the Karelian Front, V.P. !>2.

I.I. Kozhemyako also spoke about the postscripts, which were no longer organized by the pilots themselves, but by the headquarters of the regiment: “They send a foreman there to confirm at the ground units of the downed one, and he will determine that the downed one fell at the junction of parts. So he will take comfort and take a certificate that we shot down, and from others.

And it turns out that we shot down not one plane, but two” (although, Ivan Ivanovich clarifies, they “cheated” in this way “not often”)!33. |

So, the notorious requirement to confirm an air victory with the evidence of ground inspectors in the Soviet

Russian Air Force 1941-1945 often either not carried out, or carried out exactly the opposite - when ground troops or air force inspectors willingly "confirmed" victories that were not won in reality, i.e. engaged in fraud. There were also cases of deliberate fraud on the part of aviators. Thus, not only the German, but also the Soviet rules, constantly praised in our country, for confirming claims for an air victory did not guarantee against overstatement of the number of aircraft shot down by fighter pilots.

Is it possible, however, to ascertain which of the sides inflated the number of aerial victories of their fighter pilots to a lesser extent? The above information about the ratio of the number of victories officially counted and actually won in several dozen air battles suggests that the German side was such a side. If the Soviet overestimated the real successes of their fighter pilots in these battles by 3-9 times (on average - 5.3 times), then the German - only 1.3-4.3 times (on average 2.4 times). times). The same is evidenced by the results of checking the official combat accounts of several German and Soviet aces - a check carried out according to the documents of the opposite side, which recorded the combat losses of their aircraft. It turned out that, for example, H.-J. Marcel from the 1st group of the 27th Fighter Squadron, who had 158 official air victories, actually shot down 120 aircraft, i.e. the results achieved by this ace, the Germans overestimated

only 1.32 times. And the official results of J. Priller From the 26th fighter squadron were not at all higher than WE by one iota: British and American documents confirm the downing of all of the 101 aircraft listed on his account!54! At the same time, P.S. Kutakhov, who fought on Ka

rail front, first in the 145th (later the 19th guards), and then in the 20th guards fighter regiments, shot down not 13 (as it is officially considered), but only from 3 to 6 German aircraft, B.P. Safonov from 72- th (then - the 2nd Guards) mixed air regiment of the Air Force of the Northern Fleet - not 20, but from 4 to 8, but fought in the same regiment (at the end of 1942 it became the 2nd Guards Fighter Aviation Regiment of the Navy Air Force) N.D .Didenko and N.A. Boky - not 14 and 17, respectively, but from 33 to 8 and from 3 to 10 (exact figures cannot be established, since in almost all the battles with the participation of these pilots, several councils claimed at once to shoot down each of the aircraft actually lost by the Germans ski pilots)!55. In other words, the official results of Kutakhov are overestimated by 2.17-4.33 times, Safonov by 2.5-5 times, Didenko by 1.75-4.67 times, and Bokia by 1.7-5 times. 67 times (on average - in the range from 2 to 5 times).

The foregoing forces, by the way, with more confidence than is customary in domestic literature, to take the three-digit numbers of air victories of many

German aces of the Eastern Front. As you know, according to official Soviet data, during the Great Patriotic War, none of the Soviet fighter pilots managed to shoot down more than 62 enemy aircraft, and 62 appear on the combat account of I.N. Kozhedub alone, who fought in 240 m and 176th Guards Fighter Aviation Regiments. Meanwhile, the Luftwaffe's fighter aviation had 167 (!) pilots, behind whom officially there were 62 or more aircraft shot down on the Soviet-German front. At the same time, 91 of them on the official combat account had from 62 to 99 such vehicles, 50 had from 100 to 149, 18 had from 150 to 199, y3 had from 200 to 249, y3 had from 250 to 299, and au 2 had from 300 up to 345 ... 156 A complete list of these aces has already been published more than once in Russian-language literature; let us recall only the names of the pilots who were credited with over 200 victories on the Soviet-German front. These are H. Lipfert (201 official victories on the Soviet-German front), H. [raf (202), V. Batz (234), V. Novotny (255), O. Kittel (267), G. Rall (273) , G. Barkhorn (301) and E. Hartmann (345)157. Most of these aces fought in the East in I (Bark

Horn and transferred in February 1945 to the [Group of the 53rd squadron Lipfert) and Sh (Graf, Batz and Rall) groups of the 52nd Fighter Squadron, Hartmann successively fought in Sh (October 1942 until October 1944), P (in October 1944) and [(from November 1944 until the end of the war) groups of the 52nd (and for two weeks in February 1945 - in the [group of the 53rd), and Kittel and Novotny (the latter started in the reserve group of the 54th squadron) - in the Ggroup of the 54th.

The common point of view among us on the problem of the reliability of such figures is stated, in particular, by G.A. Baevsky: “The pilots-aces of the Luftwaffe were an exceptionally strong adversary, but we reject two- and three-hundred claims for victories as completely unproven”!38 . However, the argumentation of the supporters of this point of view boils down only to the erroneous thesis that the air victories for the Germans were counted on the basis of the film of the machine gun photo (which, as a rule, recorded only hits on the plane, but not the fact of its downing)! 5?. As we have seen, in order to officially count the victory of the Vluftwaffe, the testimonies of other participants in the air battle were also required. And the statements of well-known "experts" (as the Luftwaffe called their aces) about their victories were checked as carefully as the statements of newcomers. For example, V. Novotny announced 305 Soviet aircraft shot down by him - however, only 255 were credited to him; out of 194 applications from P. Düttmann from the 52nd Fighter Squadron, only 152160 were satisfied. I didn’t see how he fell ... We have every reason to believe that, at least, for G. Rall and E. Hartmann, the official combat accounts are no more overstated than for H.-J. Marcel, i.e. e. no more than 1.3-1.35 times: Rall was distinguished by the same outstanding accuracy of fire as Marseille (both were considered the best snipers of German fighter aircraft! 1), and Hartmann was not only

personal shooter, but also sought to open fire from minimum distances. Accordingly, it can be assumed that Rall managed to shoot down approximately 200-210 Soviet vehicles,

and Hartmann - 255-265. The same "overestimation factor" (1.3-1.35) can, I think, be applied to the official account of G. Barkhorn, who, according to several pilots who knew him well, "was very reliable." “He,” testified, for example, his colleague in the P group of the 52nd fighter squadron, J. Steinhoff, “declared his victory when there was no doubt about it. I cannot recall a single case when his air victory would not have been confirmed! 62. Of course, the testimonies of pilot witnesses, as noted above, may be false, and the number of Barkhorn's victories is undoubtedly overestimated. However - judging by the reputation of this ace - hardly to a greater extent than Marseille, so in reality Barkhorn could well have shot down 220-230 Soviet vehicles.

“Russian historians,” A.G. Bolnykh rightly notes, “have a more fertile topic for research – checking the number of victories of our aces”163. As noted above, the official combat accounts of four Soviet pilots who became famous in the Arctic - B.P. Safonov, P.S. Kutakhov, N.A. on average, in the range from 2 to 5 times ... In this regard, it is even reasonable to ask the question: is the gap between the numbers of air victories of the Soviet and German aces even more significant than judging by the official data of both sides?

The fact that the Soviet side overestimated the number of victories of its fighter pilots more than the German side is understandable. It can be seen from the previous presentation that the Soviet practice of counting aerial victories differed not more (according to N.G. Bodrikhin, G.F. Kornyukhin and a number of other authors164), but less exactingness in the presence of confirmations of the pilot’s report about the plane he shot down. If the Vluftwaffe strictly complied with at least the requirement to present evidence of other participants in air combat, then in the Soviet Air Force they often dispensed with any evidence at all!

In addition, there is reason to believe that the confirmation of air victories made by pilot witnesses

in the Luftwaffe turned out to be false less often than in the Soviet Air Force. After all, firstly, among the Germans, the wingman of a pair of fighters was almost officially assigned the duty not only to cover the leader, but also to visually record the victories won by him; and the followers themselves and their leaders took this extremely seriously! So, the famous ace V. Novotny from the [group of the 54th fighter squadron, from

covering the fire, invariably said: "Beware!" - so that the wingman has time to focus his attention on the plane attacked by Novotny! 65. And the follower of the even more famous H.-I. Marcel from the [group of the 27th fighter squadron - R. Peottgen - sometimes did not accompany the leader at all during the attack, but circled to the side and was exclusively engaged in monitoring the results of Marseille's firing. The fact that the wingman is also the controller was not forgotten by less eminent pilots. Here, for example, are the memoirs of the former pilot of the P group of the 54th fighter squadron, N. Hannig, about the air battle that took place in early May 1943 in the Shlisselburg area and in which Fenrich Hannig flew as a follower of Chief Sergeant Major K. Muller. “Short burst - iLaGG-3 explodes. I confirm the victory of Xavier [Müller. - A.S.]. "Your turn, I'll cover," he replied. [...| My weapon rumbles. [...] From the fuselage of the "Ivan" stretched a strip of black smoke. “He is still flying. Make one more pass,” Xavier advises!”66. As you can see, the presenter, if possible, purposefully observed the results of his partner's shooting. Secondly, the German wingmen (and other witness pilots as well) were, as a rule, in more favorable conditions for observation than the Soviet ones. Ultimately, this was due to the superiority of German pilots over most Soviet pilots in training, as well as the fact that it was more convenient to control a non-German fighter in battle than a Soviet one (more on both will be discussed in chapter |). So, having a better command of the machine, the Germans, of course, could pay less attention to piloting in battle and more to air observation (especially since many of the pilot’s actions to control the engine and propeller on German fighters were taken over by automation). Better

it was certainly easier for trained German pilots to keep up with and cover the leader and record the results of his firing. The story of non-commissioned officer A. Mors from the P group of the 5th Fighter Squadron about an air battle that took place on September 27, 1942 in the area of the Shongui airfield near Murmansk and in which the narrator was a wingman in a pair of Lieutenant T. Weissenberger is indicative. “[...] Weissenberger,” Mors narrates in detail, “at an altitude of 2500 meters takes the third Hurricane into sight, did not have time to press the trigger, the Russian pilot throws the plane into a left turn, but Weissenberger’s “yellow 4” does not lag behind, A 20-mm projectile strikes from 50 meters, the plumage flies off the Hurricane, the Messerschmitt continues to pursue it until it crashes vertically into the ground. I look at the clock - 15.51, the place is 9 kilometers south of Shongui! It is hard to imagine that a pilot who had recently arrived at the front could see so much in the thick of the battle and even managed to record the time and place of the downed aircraft crash. However, the probability that Morse was mistaken in determining the fate of the “third Hurricane” is only 20%! Indeed, according to Soviet documents, of the five aircraft that the Germans claimed to have shot down in this battle, four (two Hurricanes from the 837th and two Kittyhawks from the 20th Guards Fighter Aviation Regiment of the Air Force of the 14th armies of the Karelian Front) were indeed shot down ... 168

The superiority of the German pilots in training, as a rule, gave them a tactical advantage (for more details, see chapter |), - aero, in turn, could also make it easier for the wingman to observe the results of the leader's firing. For example, in the famous battle conducted by H.-J. Marcel in the skies of North Africa on June 3, 1942, inexperienced South African pilots built a defensive circle - while Marseille attacked them using a vertical maneuver - now falling on the circling Kertiss fighters R-40 "(" Tomahawk ") from above, then stinging them from below. Against such attacks, planes flying in a horizontal plane in a circle were helpless; their pilots may not have even seen the swift B1109E-4 swooping down on them. As a result, the slave of the German ace R. Pöttgen got the opportunity

the ability to focus on surveillance: there was no need to cover Marse in this situation, and there was almost no need to worry about your own safety. Accordingly, the observation turned out to be of high quality. As is clear from British documents, all six P-40s, the fall of which Pöttgen, according to his report, clearly observed, were indeed shot down by Marseille ...!69 But for the Soviet-German front, such battles are a vertical maneuver of the Germans against the defensive the circle of their opponents - were more characteristic than for the North African! Due to the poor training of the bulk of Soviet fighter pilots, the defensive circle remained their favorite tactical method even in 1943...179 K. Müller and N. Hannig also had a huge tactical advantage in the battle we mentioned above : Soviet LaGG-3 ata forged them one by one, slowly rising towards the waiting for them E \! 190. In the same way - attacking the four BE109 one by one - the Soviet fighters acted in the battle described by A. Mors. Thanks to this illiterate enemy tactics, German pilots often found themselves in relative safety - and, accordingly, could pay more attention to monitoring the results of firing.

each other.

So, the official number of victories of German fighter pilots is less exaggerated than the official number of victories of Soviet fighter pilots. And since these latter, even according to official data, scored fewer victories during the Great Patriotic War than the Germans (about 39,500 against about 45,000), we can draw an unambiguous conclusion: Soviet fighters shot down much fewer enemy aircraft on the Soviet-German front. than the German ones.

Is it possible, however, to answer the question about the number of

aircraft shot down (or destroyed) by fighters from each side, more precisely? In the first approximation, perhaps, it is possible, but - we emphasize! - only in the first

closer. In those several dozen air battles of 1941-1944, the results of which were given above, the Soviet side overestimated the number of victories actually won by its fighters, as already noted, by an average of 5.3 times, and the German side by an average of 2 ,4 times. If we extrapolate these coefficients to all air battles of the Great Patriotic War with the participation of fighters, it turns out that Soviet fighters shot down about 7,500 aircraft on the Soviet German front, and German - about 18,750, i.e. 2.5 times more.

It should be noted that the figure of air victories of Soviet fighters that we derived as a first approximation is quite consistent with the figure of irretrievable combat losses of German aviation on the Soviet-German front established based on the materials of the service of the Quartermaster General of the Luftwaffe. As follows from the data cited by R / Larintsev and A. Zablotsky! ", these losses are in the range of 9,000-10,000 aircraft (researchers did not have at their disposal the relevant documents for 1945 and for the last two months of 1942 and 1944). Taking into account the losses of the allies of Germany fighting on the Soviet-German front, the number of aircraft destroyed by the Armed Forces of the USSR during the Great Patriotic War should grow to approximately 10,000-11,000,172. If we assume that one fourth of the aircraft shot down by Soviet fighters, was restored by the enemy, it turns out that out of approximately 10,000-11,000 enemy aircraft destroyed on the Soviet-German front by the Soviet side, about 5,500 fell to the share of fighter aviation victims - which looks quite real. The rest fell victim to anti-aircraft fire or defensive fire from bomber, attack and reconnaissance aircraft.

The number of aircraft shot down by Luftwaffe fighters on the Soviet-German front, which we derived as a first approximation, can be compared with the approximate number of Soviet aircraft destroyed in air battles during the Great Patriotic War. This last RLarintsev and A. Zablotsky, - having based their

According to their calculations, the published Soviet data on the specific causes of irretrievable combat losses of the Red Army Air Force for 1944 are estimated at approximately 22,400 machines (out of 46,100)!73. Approximately 1,000 of them can be attributed to Allied [Germany] aviation (which, as we

tried to justify at the beginning of this chapter, they destroyed about 2,400 Soviet aircraft), so that the share of the victims of the German Air Force remains approximately 21,400. destroyed about 12,500 of the 21,400 Soviet vehicles that died in air battles; the rest - on the account of other branches of German aviation. It is difficult, however, to admit that bombers, attack aircraft and reconnaissance aircraft managed to destroy almost as many aircraft in the air as fighters. This means that either the figure we deduced of 18,750 Soviet aircraft shot down by German fighters is underestimated, or the figure deduced by RLarintsev and A. Zablotsky of 22,400 Soviet aircraft killed in air battles is overestimated. Most likely, there is both. Thus, facts are known that indicate that German fighter pilots overestimated the number of their victories by an average of less than 2.4 times (as we assumed). According to German data, in 1943 the irretrievable combat losses of Soviet fighter aircraft amounted to about 8,500 aircraft, and in 1944 - about 6,200,174; As can be seen from our table 1, both of these figures are only 1.5 times more than the corresponding Soviet ones... On the other hand, R. Larintsev and A. Zablotsky clearly underestimate the number of Soviet aircraft destroyed at airfields. They define it as approximately 2,800 aircraft, and meanwhile, by July 31, 1941, 5,240 Soviet aircraft were listed at the headquarters of the Red Army Air Force in the column “unaccounted for loss”!75. According to V.I. Kondratiev’s justified opinion, most of them were actually captured by the rapidly advancing enemy at their own airfields!76 — and those captured by the enemy should be equated with those destroyed at airfields. After all, both of them were irretrievably lost for the Soviet Air Force, lost at their own airfields - and lost as a result of actions

enemy... In general, it would seem, for the time being, to consider that German fighters shot down from 19,000 to 22,000 Soviet aircraft on the Soviet-German front.

4. WHOSE FIGHTERS ACTED IS IT MORE EFFECTIVE ON THE SOVIET-GERMAN FRONT?

So, on the Soviet-German front, German fighters shot down significantly (according to estimates made in the first approximation, approximately 2.5-3 times) more enemy aircraft than Soviet ones. At the same time, German fighters were constantly operating there much less than Soviet ones, at times - an order of magnitude less!

Table 4

APPROXIMATE NUMBER OF FIGHTERS ON
THE SOVIET-GERMAN FRONT IN 1941-1945! 77

Number of fighters

Date on the Soviet-German front Correlation 06/22/1941 4223 -
4989 ** 1036 4.1: 1-48: 1 01/10/1942. ? 449 02/14/1942 ?
450 to 10.4: 1 03/31/1942
454 | 09/30/1942? 611 to 12:1
11/19/1942 to 2700***
01/01/1943 to 4100*** 395 |
03/31/1943? 612

07/01/1943 to 5400***
09/30/1943 ? 531
01/01/1944 to 5700*** 473 | 03/31/1944
2,513 | 06/06/1944? 550
| 06/22/1944? 441

|

01/01/1945 to 9000***

05/01/1945 to 8000 ***

* Twin-engine fighters are not taken into account (about 100-150 aircraft for each date), a significant part of which served as attack aircraft and bombers.

**
*** According to V.I.Alekseenko and D.B.Khazanov, respectively. Estimated data.

74

Thus, for one German fighter operating on the Soviet German front, there are an order of magnitude more downed enemy aircraft than for one Soviet. Even at the end of the war, during the Petsamo-Kir Kenes operation, from October 7 to November 1, 1944, 468 fighters of the 7th Air Army and the Air Force of the Northern Fleet (Aircobras, Kittyhawks, Yak-1, Yak- 76, Yak-9, La-5 and LaGG-3) managed to shoot down (or destroy) 25 German aircraft, and 66 Sh and [Groups of the 5th Luftwaffe Fighter Squadron (B {109C) — 66 Soviet aircraft (fig. The losses were established according to the documents of the party that incurred them)!7. Those. German fighters, which were 7.09 times less than Soviet ones, managed to shoot down (or destroy) 2.64 times more aircraft than Soviet ones; one German fighter accounted for 1 downed enemy aircraft, and for one Soviet - only 0.05, or 19 times less!

At the same time, as we have seen, the irretrievable combat losses of Soviet fighters on the Soviet-German front turned out to be approximately 6.3 times less than the German ones. According to the calculations of R. Larintsev and A. Zablotsky, in 1944 the irretrievable combat losses of German aircraft on the Eastern Front amounted to 2715 aircraft (including 839 fighters), they destroyed approximately 4200 Soviet ones!?73; taking into account the fact that out of 2715 several dozen fell victim to the Americans appearing over the rear areas of the Eastern Front, and out of 4200 part was shot down not by fighters, but by attack aircraft, bombers and the Hungarian and Romanian Air Forces, it can be concluded that in 1944 German fighters, having irretrievably lost about 800 vehicles from the impact of Soviet weapons, they shot down about 3500 Soviet aircraft, and Soviet fighters (whose combat irretrievable losses in 1944 amounted to about 4100 aircraft!80) shot down significantly less than 2700 German aircraft (at least half of which - on the account of anti-aircraft guns and shooters of IL-2 bombers). In other words, even in 1944, for one fighter irretrievably lost for combat reasons, the Germans had about 4.4 destroyed enemy aircraft on the Soviet-German front, and the Soviet Air Force had

significantly less than 0.66 (most likely about 0.3), i.e. again, much less. Such performance more than compensates for the even higher level of relative losses of German fighters on the Soviet-German front in 1944 than that of the Soviets (one combat irretrievable loss accounted for them in 83 sorties, while the Soviets, by November 1944 - at 127)181.

So, the Soviet fighters, far outnumbering the German ones, shot down about 2.5-3 times fewer aircraft on the Soviet-German front than the German ones, and suffered 6.3 times more losses. At the same time, they managed to paralyze the actions of non-German daytime bomber aviation only in 1944 (and even then only thanks to the overwhelming numerical superiority), and only in 1944 did they manage to hinder the actions of German attack aviation. On the other hand, German fighters, numerically significantly inferior to the Soviet ones, shot down approximately 2.5-3 times more aircraft on the Soviet-German front than the Soviet ones, while suffering 6.3 times fewer losses. At the same time, until 1944, they were able to ensure the effective operation of their attack aircraft. All these circumstances together allow us to conclude that the actions of the German fighter aviation on the Soviet-German front turned out to be more effective than the actions of the Soviet.

Notes

1 See, for example: Solonin M. On peacefully sleeping airfields... June 22, 1941. M., 2006. S. 130-132; Drabkin A. I fought in a fighter. Taking the first hit. 1941-1942. M., 2007. S. 234-239; Onge. I fought with the Sasami of the Luftwaffe. To replace the fallen. 1943-1945. M., 2006. S. 142-144, 145-146, 150-154, 191.

2 Solonin M. Decree. op. S. 131.

3 Drabkin A. I fought with aces of the Luftwaffe. pp. 124, 129, 206, 266, 275, 429-430, 445-446; Gorbach V. Above the Fiery Arc. Soviet aviation in the Battle of Kursk. Moscow, 2007, pp. 83, 85, 112, 215, 237, 305, 310-311, 415; Medved A.N., Khazanov D.B. Dive bomber Pe 2. "Leshka", which became a queen. M. 2007. S. 70, 84, 109.

4 Russian archive. The Great Patriotic War. T. 15 (4-4). M., 1997. S. 45; Rastrenin O. V. The main striking force // Drabkin A. I fought on the Il-2. M., 2006. S. 369.

5 Shvabedissen V. Stalin's falcons. Analysis of the actions of Soviet aviation in 1941-1945. Mn., 2001.S.72, 75, 77.

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8 Cit. by: There. pp. 243, 363, 449.

9 Drabkin A. I fought in a fighter. S. 234.

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12 Calculated according to: Isaev A.., Kolomiets M. Hitler's last counterattacks. The defeat of the Panzerwaffe. M.., 2010. S. 167; Perov V., Rastrenin O. Shturmovik Il-2 // Aviation and Cosmonautics yesterday, today, tomorrow ... 2001. No. 5-6. S. 101.

13 Drabkin A. I fought in a fighter. pp. 355, 358, 359.

14 Russian archive. The Great Patriotic War. T. 15 (4-4). pp. 372, 386.

15 Gorbach V. Decree. op. S. 60.

16 /vabedissen V. Decree. op. P.275.

17 Drabkin A. I fought with the Sasami of the Luftwaffe. S. 144.

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20Khodosh V.A. Memoirs of a participant and witness of many important events of the twentieth century in Russia // Military Historical Archive. 2005. No. 6. S. 65.

21 Nikulin N. Stremutka station. Early spring 1944. (Memories of a soldier) // New Sentry. No. 13-14. SPb., 2002. S. 191.

22 Loza D.F. Tale of the Otanks "Sherman". SPb. 2001, p. 16.

23 Schwabedissen V. Decree. op. S. 292. -

24 Bessonov E. To Berlin! 3800 kilometers on the armor of tanks. M., 2005. S. 70, 118, 222.

25 Arkhipov V.S. Time for tank attacks. M., 1981. pp. 198-199, 218.

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27Bryukhov V. "Armor-piercing, fire!" Memories of a tank ace. Moscow, 2009, pp. 129, 132, 138, 139, 156, 160, 168, 180, 196-197, 200, 206——. 210, 230, 232, 235, 237; Isaev A., Kolomiets M. Decree. op. S. 38,

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29 Solonin M. Decree. op. pp. 129, 132.

30 Calculated according to: Gorbach V. Decree. op. pp. 80, 83; Medved A., Khazanov D. Pe-2 dive bomber. A "pawn" that has become a queen. S. 153.

31 See, for example: Mertsalov A.N., Mertsalova L.A. Stalinism and war. M., 1998. pp. 371-372, 391, 3393.

32 Quoted from: Rybin Yu. The best defense... // Aviation. No. 11. M., 2001. P.5.

33 Ibid.

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56 LarintsevR, Zablotsky A. Decree. op. S. 44.

57 The classification has been removed. S. 360.

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61 Khazanov D.B. Unknown battle in the skies of Moscow. 1941-1942 defensive period. S. 96; He is. Unknown battle in the sky Moscow. 1941-1942 Counteroffensive. S. 53.

62 Larintsev R, Zablotsky A. Decree. op. pp. 44-45.

63 Throughout 1942 on the Soviet-German front, action

or three groups of the 52nd and three groups of the 54th fighter squadron. From the composition of the 5th fighter in January - February, one group fought there, in March - one - two, in April - December - two groups; four groups from the 51st Fighter Battalion fought in January-July and September in the East; in August - three or four; in October - three; in November - two or three, and in December - 3 1/3 (1, N, Mib detachment of the N group). In addition to them, in January - February, one fought there, in March - one - two, in April - October - two groups of the 77th fighter squadron; in May - two or three, in June - December - three groups of the 3rd fighter, and, finally, in June - September - one group of the 53rd fighter. During the whole of 1943, two groups of the 5th, 3 1/3 groups of the 51st and three groups of the 52nd fighter squadron fought on the Soviet-German front. From the
composition of the 54th Fighter in January and August - December - three groups acted, in February - March - one - two and in the relay - August - two groups. In addition to them, three groups of the 3rd Fighter Squadron operated on the Soviet-German front in January, and two groups of the 3rd Fighter Squadron in February-August, and one group of the 26th Fighter Squadron in February-May. |

64 Classified removed. pp. 359-360.

65 Calculated according to: Zefirov M.V. Aces of World War II. Ally the Luftwaffe. Estonia, Latvia, Finland. M., 2003. S. 358, 158.

66 Zefirov M.V. Aces of World War II. Allies of the Luftwaffe. Hungary, Romania, Bulgaria, Croatia, Slovakia, Spain. M. 2003. S. 254.

67 According to official Hungarian data (incomplete for the Air Force), the Hungarian Air Force in 1941-1945. and Hungarian anti-aircraft and anti-tank artillery - in 1942 they shot down 696 Soviet aircraft (calculated according to: Zefirov M.V. Aces of the Second World War. Allies of the Luftwaffe. Hungary, Romania, Bulgaria, Croatia, Slovakia,

Spain. pp. 71, 93, 107, 130, 135). Taking into account the actions of the Hungarian anti-aircraft gunners in 1941 and 1943-1945, and also the fact that the figure of 696 did not include all air victories credited to the crews of the bombing, attack and reconnaissance aviation, the final official figure of Soviet aircraft shot down by the Hungarians should be at least 1000 .

68 Italian fighter aviation claims to destroy (it would be more accurate to say, to shoot down) 88 Soviet aircraft (Haustov A.V., Havilo E.K. Mario Castoldi's camouflaged "lightning bolts" (history of Italian fighters Mass! 202/205) // AeroHobby, 1993, No. 2, p. 8). Taking into account the actions of the Italian anti-aircraft gunners, the total official figure of Soviet aircraft shot down by the Italians can therefore reach 150-200.

69 Slovak Air Force fighters operated on the Soviet-German front only in 1941; according to official data, they then shot down 6 Soviet aircraft (Zefirov M.V. Aces of the Second World War. Allies of the Luftwaffe. Hungary, Romania, Bulgaria, Croatia, Slovakia, Spain. S. 425). Taking into account the actions of anti-aircraft gunners, the Armed Forces of Slovakia should claim to shoot down no less than 10 Soviet vehicles.

70 Calculated according to: Zefirov M.V. Aces of World War II. Allies of the Luftwaffe. Hungary, Romania, Bulgaria, Croatia, Slovakia, Spain. pp. 399, 432, 467.

71 The final list of losses of the Red Army Air Force and fleets compiled by P.A. Aptekar during the Soviet-Finnish war (Sokolov B.V. Secrets of the Finnish war. M .., 2000. S. 405-409) gives a figure of 322 for combat reasons of the aircraft; clarification of information about the losses of the Air Force of the Baltic Fleet is brought up to 327 (Kondratiev V. Tales of the Finnish Forest, or “Untimely Thoughts” about the Winter War // Aviamaster. 2000. No. 4. P. 30-31). However, the aforementioned statement does not take into account the losses of four bomber aviation regiments, as well as individual squadrons of military aviation and air brigade directorates (data on them were not found). Therefore, the final figure may well reach 350.

72 Calculated from: Classified removed. S. 360.

73 According to official Soviet (or French) data, the Normandia shot down 45 Messerschmitt V!109 fighters, 10 destroy Messerschmitt V! 110 "(also listed as part of fighter aviation) and 167 Focke-Wulf RA 90 aircraft - used by the Germans in both fighter and attack aviation (Medved A., Khazanov D. Not only Normandy. French aviation formations in the USSR // Avia master. 1999. No. 6. P. 42). Since the vast majority of RM / 190 was recorded by the French combat accounts in 1944-1945. - when most of the aircraft of this type used on the Eastern Front were part of the assault squadrons - we will accept that

of the 167 Fokkers that Normandy pilots claim to shoot down, fighters accounted for one third, i.e. about 55 cars.

that

74 See: Medved A., Khazanov D. Not only Normandie. French aviation formations in the USSR // Aviamaster. 1999. No. 6. S. 37, 39, 40.

75 Medved A. Polish aviation formations in the USSR during the Great Patriotic War // History of Aviation. 2001. No. 4. S. 29; Alekseenko V., Nikolsky M. Lavochkin Fighters in the Great Patriotic War // Aviation and Cosmonautics Yesterday, Today, Tomorrow... 2000. No. 5-6. P. 29 (from the last work it is clear that in 1944 the Czechoslovak pilots, according to official data, destroyed “more than 20” enemy aircraft on the Soviet-German front, and in 1945 - at least 2 more).

76 Zefirov M.V. Aces of World War II. Allies of the Luftwaffe. Hungary, Romania, Bulgaria, Croatia, Slovakia, Spain. S. 269.

77 See: Ibid. pp. 350, 352.

78 Beyond the Kaluga outpost. No. 17 (204). May 7-16, 2001.

79 Calculated according to: Alekseenko V. Decree. op. S. 8.

80 Calculated according to: Russian archive. The Great Patriotic War. T. 15 (4-4). S. 386.

81 Great Patriotic War. 1941-1945. Encyclopedia. M., 1985. S. 310.

82 Damn dozen aces of the Luftwaffe. Mn. 2000, p. 413.

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84 Khazanov D.B. Unknown battle in the skies of Moscow. 1941-1942 defensive period. pp. 116-117; Litvin G. Decree. op. P. 10.

85 Rybin Yu. Equation with one unknown ... S. 34-35.

86 Compiled from: Ibid. pp. 38, 39, 41.

87 Compiled by: Rybin Yu. Ehretsep {a#e! beyond the Arctic Circle // Aviamaster. 1998. No. 5-6. pp. 32-36; 1999. No. 1.S. 24-30; 1999. No. 4. pp. 34-41.

88 Khazanov D. Werner Melders // Aviamaster. 1997. No. 4-5. S. 30; Zefirov M.V. Aces of the Luftwaffe. Day fighters. T.P. S. 192.

89Khazanov D.B. Battle for the sky. 1941. From the Dnieper to the Gulf of Finland. M. 2007.S.88-89.

30 Khazanov D.B. Unknown battle in the skies of Moscow. 1941-1942 defensive period. pp. 81-82.

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92 Zefirov M.V. Aces of the Luftwaffe. Day fighters. T.1. pp. 377, 379.

33 Khazanov D. Battle over Iasi. pp. 20-21.

94 Beyond the Kaluga outpost. No. 17 (204). May 7-16, 2001.

95 Ignatiev G.V. I'm right. S. 226.

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97 Op. Quoted from: Rybin Yu. An equation with one unknown ... P. 32.

98 Baevsky G.A. With aviation through the twentieth century. M., 2001.S. 77, 78.

99 Op. Quoted from: Rybin Yu. An equation with one unknown ... P. 32.

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101 Drabkin A. I fought in a fighter. S. 73; He is. I fought with the aces of the Luftwaffe. S. 264.

102 Cit. Quoted from: Rybin Yu. Equation with one unknown ... P. 32.

103 DrabkinA. I fought in a fighter jet. S. 44, 352.

104 Op. Quoted from: Rybin Yu. Equation with one unknown ... P. 32.

105 Rybin Yu. beyond the Arctic Circle // Aviamaster. 1999. No. 4.S. 36.

106 Ibid.

107 PatientsA. Peculiarities of National Criticism... P. 19.

108 Drabkin A. I fought with aces of the Luftwaffe. S. 499.

109 BulakhA. Me210/410 - failure or belated success? // History of Aviation. 2001. No. 2. S. 34.

110 Kornyukhin G. And again the experts of the Luftwaffe // Speak M. Asy luf twaffe. Smolensk, 1999, p. 10; Baevsky G.A. Decree. op. S. 111.

111 Kornyukhin G. Decree. op. S. 11.

112 Zefirov M.V. Aces of the Luftwaffe. Day fighters. T. |. M., 2002.S. 115. b

113 Toliver R.F., Constable T.J. The best ace of World War II. M., 1999. pp. 135-136.

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115 See: Bukin S. Na, Fritz, light up! German prisoners of war in the Russian hinterland // Motherland. 1998. No. 1.S.90-91.

116 Mikoyan S.A. Memoirs of a military test pilot. M., 2002.S.98; Baevsky G.A. Decree. op. S. 110.

117 Kornyukhin G. And Luftwaffe Experts Again. S. 13.

118 Op. by: Speke M. Decree. op. pp. 216-217.

119 LipfertV. Decree. op. S. 148.

120 See: Drabkin A. I fought with the Sasami of the Luftwaffe. S. 41, 335.

121 See. , for example: Kornyukhin G. And again the experts of the Luftwaffe. P. 11: Bodrikhin N.G. Soviet aces. M., 1997.

122 Rybin Yu. EkhrepepuaNe! beyond the Arctic Circle // Aviamaster. 1999. No. 1.S. 32.

123 Rybin Yu. Equation with one unknown ... S. 34.

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125 Russian State Military Archive (RGVA). F.4. Op.18. D.54. L.299.

126 Rybin Yu. Equation with one unknown... P. 34.

127 Khazanov D.B. Battle for the sky. 1941. From the Dnieper to the Gulf of Finland. S. 301.

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129 Kazachkovsky O.D. Physics of war. M., 1999. S. 97.

130 Ivanov V.M. War through the eyes of a lieutenant. 1941-1945. SPb., 2001.S. 151-152.

131 Bykov V. “For the Motherland! For Stalin!" The price of past battles // Motherland. 1995. No. 5. pp. 35-36.

132 Rybin Yu. Equation with one unknown... P. 31.

133 Drabkin A. I fought with aces of the Luftwaffe. S. 158.

134 DrabkinA. I fought in a fighter jet. pp. 45, 92-93; Onge. I fought with the Sasami Luftwaffe. S. 5499.

135 Drabkin A. I fought with the Sasami of the Luftwaffe. pp. 158, 434.

136 Ibid. S. 277.

137 Kornyukhin G. Decree. op. S. 11.

138 Khazanov D.B. Unknown battle in the skies of Moscow. 1941-1942 defensive period. S. 21.

139 Ibid.

140 Khazanov D.B. Battle for the sky. 1941. From the Dnieper to the Gulf of Finland. S. 296.

141 Op. Quoted from: Rybin Yu. About Safonov not from memoirs // World of Aviation. 1995. No. 1.S. 16.

142 Ibid.

143 Ibid.

144 Rybin Yu. Equation with one unknown... P. 34.

145 Gorbach V. Decree. op. pp. 39-40.

146 Russian archive. The Great Patriotic War. T. 15 (4-4). P.385.

147 Drabkin A. I fought in a fighter. S. 45, 93; He is. I fought with the aces of the Luftwaffe. pp. 26, 42, 345, 379-380.

148 Drabkin A. I fought with the Sasami of the Luftwaffe. S. 210.

149 Ibid. P.70. |

150 Ibid. pp. 158-159.

151 Ibid. S. 323.

152 Ibid. S. 487.

153 Ibid. S. 159.

154 Zefirov M.V. Aces of the Luftwaffe. Day fighters. T. |. S. 117.

155 Calculated according to: Rybin Yu. Equation' with one unknown ... S. 38, 39, 41.

156 Calculated according to: Zefirov M.V. Aces of the Luftwaffe. Day fighters. T.1.S. 120-259.

157 See: Ibid. pp. 120, 123, 134. M. Speek gives slightly different numbers of air victories won on the Eastern Front by Lipfert (203), Batz (232), Rall (272) and Hartmann (352; Speke M. op. op. C 325-327). In the case of Lipfert and Hartmann, this is an inaccuracy: the Ploiesti region, where in June 1944 Lipfert, according to official data, shot down one, and Hartmann - five American aircraft, until August 1944, the responsibility of the German command of the Eastern Front (t .e OKH - Commander-in-Chief

ground forces) was not included. (Another aircraft out of 203 credited to Lipfert - even though he caught him on Vostochny

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front — we didn't count, since it was a US Air Force Mustang.) It's hard to say which front should include two more American aircraft shot down on which, according to official data, Hartmann's victims in the last days of the war in the Prague region (See .: R. F. Toliver, T. J. Constable, op. cit., pp. 242-244). At this time, in the air, the Eastern and Western fronts actually merged: in the same area, the Germans met with both Soviet and American aircraft. Since we are still talking about American ones, we did not include these two victories of Hartmann among those won by him on the Soviet-German front.

158 Baevsky G.A. Decree. op. S. 111.

159 Ibid. P. 110. See also about this error in: PatientsA. Translator's preface // R.F. Toliver, T.J. Constable. Best ace of World War II. M.., 1999.S.5.

160 Zefirov M.V. Aces of the Luftwaffe. Jet fighters. M., 2002. S. 334: Onge. Aces of the Luftwaffe. Day fighters. T. |1. P. 164. 161 The Devil's Dozen Luftwaffe Aces. S. 301; Speke M. Decree. op..

pp. 140-141.

162 Op. by: Devil's dozen aces of the Luftwaffe. S. 139.

163 Patients A. Peculiarities of national criticism... P. 14.

164 See: Kornyukhin G. Decree. op. S. 11; Bodrikhin N.G. Decree. op.

165 Damn Dozen Aces of the Luftwaffe. S. 175. s

166 Op. by: There. S. 168.

167 Op. by: There. S. 239.

168 Rybin Yu. Ekhreyep${aNot! beyond the Arctic Circle // Aviamaster. 1998. No. 5-6. S. 35.

169 Damn Dozen Aces of the Luftwaffe. S. 310.

170 Schwabedissen V. Decree. op. pp. 166, 169.

171 See: Larintsev R, Zablotsky A. Decree. op. pp. 44-45. Since, according to these authors, for 1941-1944. the combat irretrievable losses of the Luftwaffe on the Soviet-German front amounted to 8377 aircraft, for the entire war they should have somewhat exceeded the figure of 9000. It is possible, however, that Rlarintsev and A. Zablotsky underestimated the German losses of 1941: the figure of 1173 aircraft, it seems, was derived them not based on the materials of the service of the Quartermaster General-

steraluftwaffe, and according to the weekly reports of the OKW (Compare: Litvin G.
Summer 1941. War in the air. P. 10; it is no coincidence that the lower limit of the period for which
1173 aircraft are lost by Larintsev and Zablotsky is January 3, 1942, t .e. the end of the
next week). And weekly reports, as we have seen (see the second section of this chapter), suffer
from incomplete data. Therefore, it is possible that the final figure of irretrievable combat
losses of the Luftwaffe on the Soviet-German front can reach up to 10,000 aircraft.

comrade

172 See: Larintsev R., Zablotsky A. Decree. op. S. 45.

173 Ibid. S. 45.

174 Schwabedissen V. Decree. op. S. 267.

175 Larintsev R, Zablotsky A. Decree. op. S. 45; Khazanov D.B. Invasion. The Beginning of the Air
War on the Soviet-German Front // Aviation and Time. 1996. No. 5. S. 42.

176 Kondratyev V. In the footsteps of Stalin's falcons. Response to M. Solonin's article "Where
did Stalin's falcons fly" // Aviamaster. 2002. No. 2. S. 40.

177 Compiled by: Alekseenko V. Soviet Air Forces on the Eve and During the Great Patriotic War //
Aviation and Cosmonautics Yesterday, Today, Tomorrow... 2000. No. 2. P. 3; Khazanov
D.B. Invasion. The Beginning of the Air War on the Soviet-German Front // Aviation and Time.
1996. No. 3. S. 41; Zefirov M.V. Aces of the Luftwaffe. Day fighters. T. |. S. 106;
Khazanov D.B. Unknown battle in the skies of Moscow. 1941-1942 Counteroffensive. S.
129; World War. 1939-1945 M.; SPb., 2000. P. 723. Calculation of the number of Soviet fighter
aviation on the Soviet-German front in 1942-1945. was made on the basis of data on the
number of aircraft available in the active army (including the last and the active fleet; The
classification was removed. P. 350) and data on the proportion of fighters in the fleet of
front-line aviation (Chernetsky V. Trends in the ratio of types and branch aviation // Military
Historical Journal, 1983. No. 1.S. 28). At the same time, it was conditionally assumed
that the share of fighters in the Air Force of the active army was approximately the same
as in frontline aviation. The Air Force of the active army, in addition to front-line aviation
and naval aviation, also included long-range aviation (consisting only of bombers) and
transport air units of the Civil Air Fleet (Civil Air Fleet) - which, in principle, should have reduced
the proportion of fighters compared to front-line aviation . However, this appears to
have been compensated by the participation in combat operations of a part of numerous
air defense fighter aviation.

178 Rybin Yu. Equation with one unknown ... S. 38, 40.

179 Larintsev R., Zablotsky A. Decree. op. S. 45; Solonin M. Decree. op. S.544.

180 Classified removed. S. 360.

181 Solonin M. Decree. op. S. 544; Perov V., Rastrenin O. Sturmovik Il-2. P. 101. |

Head |

REASONS FOR DIFFERENT EFFICIENCY OF SOVIET AND GERMAN FIGHTERS

Why did the German fighter aviation operate more efficiently than the Soviet one? Why, being quantitatively much larger than the German one, the Soviet one destroyed much fewer planes than that one, lost much pain

Or was it not able to neutralize the various types of German strike aircraft at all, or was it only possible thanks to its enormous numerical superiority?

1. DID THE DIFFERENCE IN THE NUMBER OF COMMITTEES AND THE NUMBER OF POTENTIAL VICTIMS MATTER?

As for the number of shot down, one of the explanations offered in the literature is that the Germans had more opportunities to increase their combat scores, since they flew more often than Soviet pilots! But if we compare the 10 most productive Soviet fighter pilots of the Great Patriotic War with the 10 most productive German ones who flew only on the Eastern Front (see Table 5), then it becomes clear that the point is not the number of sorties. The German ten actually has more of these latter than the Soviet one, but not by much, only 1.36 times (554 versus 408; we did not include E. Hart mann, R. Trenkel and F. Obleser from the 52nd information about the number of sorties by Hartman on and the number of air victories by Trenkel is too contradictory: either 825, or 1404, or 1425 sorties, or 130, or 137 victories over Soviet aircraft. many American aircraft shot down by him over Romania and Poland in 1944 - there are 9 of them out of 1202). At the same time, the average number of official air victories for the Germans was no more than 1.36, but 3.1 times (161 against 52)! (And real ones - perhaps 5-6 times: after all, as we saw, German pilots overestimated the number of their

victories to a lesser extent than the Soviet ones.) In other words, the flight of the German ace was, on average, much more effective than the flight of the Soviet one. For one credited air victory, a German ace out of the top ten who fought only in the East accounts for an average of 3.43 sorties, and for a Soviet one - 7.94, i.e. 2.3 times more ...

Among the 1613 aircraft shot down, according to official data, by the German ten on the Eastern Front, there are six American, British, French and Romanian (three by H. Lipfert and one each by J. Brendel, H. Markar and

Xx.-J. Birkner3). But if we take the 10 most productive German aces from those who not only flew only on the Eastern Front, but also shot down Soviet aircraft there (this list does not include G. Sturm and B. Korts from the 52nd Fighter Squadron, as well as A. Wolf and H. Wernicke from the 54th, whose number of sorties we do not know), then their average figures will differ from the above only slightly - 519 sorties (instead of 554) and 3.70 sorties per official air victory (instead of 3.43).

True, for some of the pilots included in these two dozen, the number of sorties is known only approximately (when deriving the average, we conditionally equated “more than 400” to 450, “more than 600” to 650, etc.). But if we select the 10 most productive of those German aces who not only flew only on the Eastern Front, not only shot down Soviet aircraft there, but also made an exactly known number of sorties, then even then the average indicators of interest to us will not change much: 491 sorties and 3.76 sorties per official aerial victory.

Table 5

THE RESULTS OF THE COMBAT WORK OF THE LEADING SOVIET AND GERMAN Aces ON THE EASTERN FRONT OF THE SECOND WORLD WAR"

Number of sorties

The number of official air victories on the Eastern Front (for Soviet

SKY PILOTS -

Number of battles

Fighter-

air regiment

(fighter

240th; 176th Guards. | I.N. Kozhedub A.I.
Pokryshkin | about 650

around 11.02

about 450 56 about 8.04 240
53 4.53 5296
53 5.59 6 A.V.
Soothsayer - Re. 52 7.69
kin
, approx. 300 50 approx. 6.00
NM. Skomoro- | 605 46 1315 | hoV
A.I.
Koldunov 412 46 8.96 N.F. Krasnov
_| about 400 | __ about 44 about 9.09

87

th | | Number of official | Quantity
, Fighter- Quantity- | al air! sorties number | new aviation regiment | potsik |
combat- | victories in the East, one by one | p/p | (fighter- | out | front (for the Soviet- official
squadron) | | sortie pilots - | air victories personally) victory 1 154 O. Kittel 583 267 |
2.18

2 52nd H. Lipfert about 700 203 0about 3.45 3 51st J.
Brendel 950 189 | 5.03 | 4 [51st G. Schak 780
174 CI 5 [52nd P. Duttmann 398
152 262 | 6 52 W. Wolfrum | 424 137 30 o 7
[52nd 0. Fönnekold | more than 600 136
about 4.78 8 [51st H. Markar 320 121 2.64 | 9 [51st F.-J. Beren- |
over 400 117 , 0k0lo3.85 | brock | (10 52nd
H.-J. Birkner 284 117 2.43 | 11 [5th Ya. North 332 117 2.84 | 12 51st
B.
Fechtel 860 108 7.96 | Wernitz approx. 250 101
approx. 17 _|54th H. Broch 324 81 400 +

True, Soviet fighter pilots carried out a significant part of their sorties
for solving tasks not related to the fight against enemy aircraft - for
reconnaissance and ground attack. Maybe these sorties are not worth it

taken into account when calculating the total? But, firstly, sorties for reconnaissance and attack did not exclude the conduct of air battles. For example, M.M.Kibkalov won half of his official air victories (8 out of 17) just in reconnaissance sorties (then fighting in the 163rd Fighter Aviation Regiment of the 336th Fighter Aviation Division of the 6th Air Army of the 1st Belorussian Front)5. And secondly, even if we count only sorties not related to reconnaissance or attack, the total number will still turn out to be no less than that indicated in Table. 5. After all, according to the order of the People's Commissar of Defense No. 0685 of September 9, 1942, a sortie for fighters was considered "only such a sortie in which the fighters met with an air enemy and fought with him in an air battle, and when performing the task of covering attack aircraft and bombers [...| only such a sortie, in which the assault

wikis and bombers, when performing a combat mission, had no losses from attacks by enemy fighters”5. Therefore, N.G. Bodrikhin points out, “for most Soviet pilots, the number of sorties in combat conditions is 1.5-3 times greater than the number of sorties recorded by him as combat” ... And, therefore, we can only talk about increasing , and not about reducing the numbers indicated in Table. 5. And, accordingly, about a decrease, and not about an increase in the gap in the number of sorties between German and Soviet aces; about the fact that the departure of the German ace was even "weightier" compared to the Soviet summer than indicated above ...

Purely statistically, the German fighter pilots did have more opportunities to increase the number of their air victories than the Soviet ones - not because they flew more sorties than the Soviet ones, but because they encountered much more enemy aircraft. After all, the Soviet Air Force on the Soviet-German front outnumbered the non-German ones throughout the war, and from 1943 - many times, and in 1945 - in general by an order of magnitude (see Table 6).

Table 6
NUMBER OF COMBAT AIRCRAFT ON THE SOVIET-GERMAN FRONT?

_ 06/22/1941 10743 4688 | |
November 1942 8800* 3500 | June
1943 approx. 13,000** 3,000 | 01/01/1944
13400 3100 | June 1944 | 2800
01.01.1945 21500`
, 2000 | *As of November 20
“Estimate data

It is precisely the sharp increase in the strength of the Soviet Air Force that explains to us why the combat scores of many German aces grew especially rapidly in 1943-1944. - When

the superiority of the Germans in the characteristics of aircraft, the training of pilots and tactics was no longer as great as in

the first period of the Great Patriotic War. So, V. Novotny, who fought on the Eastern Front, in the G group of the 54th fighter squadron "Grunherz", for 29 months (from June 22, 1941), three quarters of his official victories over Soviet aircraft (190 out of 255) won over an 8-month period from March 7 to November 15, 1943. But during these 8 months he took part, for example, in the Battle of Kursk - on the first day of which, for each of the 186 fighters of the aviation group, which included part Novotny, there were 6 air targets: the 16th Air Army of the Central Front, which opposed these 186 E \! 190, had 1,151 combat aircraft on July 5, 1943. Then, in the same area as the Grunherz, the 15th Air Army of the Bryansk Front, which had to | July 967 aircraft...!0 Oberfeldwebel H.Strasl from the 3rd group of the 51st Fighter Squadron "Mölders" shot down in just four days, according to official data, almost as many aircraft as in the previous two years: having by the beginning of the Battle of Kursk, 39 official victories, on July 5, 6, 7 and 8, 1943, he achieved another 30,111 V. Shuk, who fought in the East, in the III group of the 5th fighter squadron "Aismeer", about 32 months (from March 1942), won half of his official victories over Soviet aircraft (98 out of 198) in the last three and a half months - from June 16 to the end of October 1944! 2 But, for example, in October, at the beginning of Petsamo-Kirkenes 1022 aircraft of the 7th Air Army of the Karelian Front and the Air Force of the Northern Fleet were involved in each of the 66 Bÿ109 "Aysmeer" participating in it, while for each of 468 Soviet "hawks" - about 0.3 (the Germans had only 169 machines) ... 13 Accordingly, the chances of Soviet pilots to meet an enemy aircraft in the air since 1943 have been decreasing. “I shot down the most German aircraft in 1943, and then in 1944 and 1945 I practically didn’t shoot down,” notes S.D. .Torelov, - in the middle of the war [actually after the middle of the war. - A.S.] state

the support in the air was already ours. Near Lvov [in July 1944. - A.S.] a large number of German aircraft was a rare case "...! 4 By the way, in foreign literature, the fact that the large numerical superiority of one of the parties reduces the chances of each of its individual pilots to meet the enemy in the air has long been noticed. It was precisely the sharp decrease in the number of potential victims that, for example, M. Spike explained the fact that in 1944-1945. British fighters shot down much fewer German aircraft than in 1940-1942, during the "battle

for England” and air battles over Malta!5. Indeed, during the summer fighting over France in 1944, the training of British pilots was already better than that of the bulk of the German ones; their planes - Spitfire E MK.GH and MK.X!U and Tempest MK.U - were no longer inferior to German ones (like Harry Kane in 1940 or Spitfire MK.U and R-40 in 1942). So, only because of the multiple numerical superiority of the Anglo-American Air Force, only one of the 58 sorties of their fighters then ended with a report on the downing of a German aircraft. American fighter pilot W. Colony, flying from the middle of 1944. over Italy, France, Romania and Germany, in general, I never met a single enemy machine in the air! And “his case was far from isolated, but one of hundreds”...!6

2: SOVIET AND GERMAN PRINCIPLES FOR THE USE OF FIGHTER AVIATION

It was easier for German fighters to meet an enemy aircraft in the air - and thereby get a chance to fulfill their mission - thanks to the rationality of German and the irrationality of Soviet principles for the use of fighter aircraft. German fighters, as a rule, solved offensive tasks:

a) "cleared the sky" in front of their bombers in the directions of the main attacks of their own or Soviet ground forces and

6) were engaged in "free hunting" in these areas, as well as over Soviet airfields.

The Soviet ones were used mainly for solving defensive tasks:

a) to cover ground troops by air patrols over the areas they occupy and

6) to cover attack aircraft and bombers by directly escorting them.

In other words, German fighter pilots were most often assigned the task of purposefully searching for enemy aircraft in the areas of their most probable appearance. And the Soviets are to passively wait for the appearance of the enemy, remaining tied to a certain area or point (a group of escorted attack aircraft). This further reduced the chances of Soviet pilots to meet with an air enemy: after all, in most of these areas and points, German aviation did not appear - it concentrated its efforts on a limited number of directions! And a significant part of the Soviet "hawks" "ironed the air" in vain - especially in 1941, when the system

warning of the approach of enemy aircraft was imperfect, and the Soviet headquarters did not seem to be engaged in the analysis of the actions of German aviation. According to the testimony of the German ace G. Rall, who was then fighting in Ukraine, as part of the III group of the 52nd fighter squadron, “the actions of the Russians in the air turned into endless and useless sorties with a very large numerical superiority, which lasted from early dawn until late suma rivers. There were no signs of any system or concentration of effort. In short, there was a desire to keep aircraft in the air at all times, "on constant patrol missions over the battlefield"! Approximately the same thing, as Yu.V. Rybin showed, happened in the summer of 1941 and at the opposite end of the front, in the Arctic. Here, for each of the 158 fighters of the Air Force of the 14th Army and the Air Force of the Northern Fleet, there were not so few potential targets: the Luftwaffe group operating in the Murmansk direction, by the end of June, consisted of 83 aircraft. Nevertheless, out of 1480 sorties made by I-15 bis, I-153, I-16 and MiG-3 of the 72nd mixed air regiment of the Air Force of the Northern Fleet in the first month

wars, 1360 (those 92%) ended without encounters with an air enemy ...! 8

Against this background, the opportunities offered to German pilots to increase their combat scores look enormous, if only because, until the end of 1943, they constantly purposefully appeared over Soviet airfields. Here, not only was a meeting with an air enemy practically guaranteed - here it was incomparably easier to shoot down this enemy! After all, the plane taking off from the airfield or landing on it was completely defenseless. Having not yet picked up or already extinguished speed, he could not maneuver in time to escape from the attack; he didn’t have it and it is often necessary for such a maneuver of a reserve of height ...

But even if a meeting with an air enemy took place, fighters solving defensive tasks were often forced to refuse to conduct combat with him - again, missing the opportunity to increase their combat score. Indeed, for air patrols and escort fighters, the destruction of enemy aircraft was by no means an end in itself! Their official task was to prevent enemy air strikes or bombardment of Soviet troops and inflicting losses on Soviet bombers and attack aircraft - and, accordingly, they were strictly forbidden to leave the cover area and break away from escorted attack aircraft. Therefore, cases like the one that happened on August 5, 1943, during the Oryol operation, in the area of the city of Kromy, were common. Covering the crossing of the 2nd Tank Army across the Kroma River, the Yak-76 of the 163rd Fighter Aviation

Regiment of the 336th Fighter Aviation Division of the 16th Air Army of the Central Front discovered a group of German bombers. “We went on the attack,” recalled A.S. Morozov, a participant in this flight, “but they, seeing our fighters, turned back. And we couldn’t pursue them – the crossing is more expensive”…! Fighter pilots from the 14th Air Army of the 3rd Baltic Front also spoke about the same cases, covering in September

1944, during the Baltic strategic operation, their troops in the Daksta area - the Seda River (Latvia) and suffered greatly from the attacks of "air hunters" from the 54th Luftwaffe fighter squadron: "They attack suddenly from the side of the sun, they try to tie down fight our group. And we can’t join the battle: just look, the bombers will swoop in” ... 20 .

And the escort fighters - at least those of them that were part of the close cover group - in fact, were generally deprived of the opportunity to conduct air combat with the enemy and could only make fire contact with him. After all, they were strictly forbidden to break away from their wards, they had only to stop the enemy’s attempts to break through to the escorted aircraft, using barrage fire and a minimum of maneuver (turn towards the attacker, short attack, launch a barrage burst and return to their original place in battle order). “And it can be very disappointing,” G.A. Baevsky, a veteran of the 5th Guards Fighter Aviation Regiment, emphasizes, “when a downed enemy fighter leaves, and our fighter cannot move away from the covered aircraft”?!. Being engaged in August - November 1943 in the main escort of the Moviks, the pilot of the 267th Fighter Aviation Regiment of the 236th Fighter Aviation Division of the 8th Air Army of the Southern Front, Junior Lieutenant D.D. Tormakhov, in 128 sorties recorded only three German aircraft. Meanwhile, in January - early May of the 43rd, flying in the 269th regiment of the same division (which was then part of the 5th, and then the 4th air army of the North Caucasian Front) to cover his troops, he, according to official data, managed to win 10 victories in 99 sorties2?2, i.e. showed efficiency, 4.3 times higher. And this despite the fact that then he had much less experience and flew not on the Yak-7bi Yak-1 (as on the Southern Front), but on the LaGT-3, which was inferior to them in flight data ... The restriction in maneuver complicated, of course, fighter pilot and self-defense. “Why did so many of us die under cover? - I. Ryazanov, who fought in the 71st (then - the 10th Guards) Fighter Aviation Regiment of the Air Force of the Navy, is indignant. - It turns out,

someone was shot down, then go further in a straight line", you can only "turn away from the enemy's blow and stand in place [i.e. put yourself in danger again. — A.S.]"?3.

But even if an air battle did break out, Soviet air patrols and escort fighters found it much more difficult to win an air victory than German "hunters" or "cleaners" of airspace. The fact is that, performing defensive tasks, passively waiting for the enemy to appear, Soviet fighters involuntarily gave up the initiative in battle to the Germans (unless, of course, the air patrol encountered Luftwaffe fighters). In fact, the pilot, who scurried back and forth, being chained to a limited cover area or to a group of escorted aircraft (and, accordingly, was concerned about how not to go beyond the boundaries of the area or not to break away from the escorted), it is more difficult to be the first to notice an enemy than to a pilot who purposefully searched for an air enemy. And, consequently, it was the German who attacked first, as a rule - and even the first blow could turn out to be fatal... productive German cue ace E. Hartmann?4. "The first one saw - half won," taught the commander of the famous 5th Guards Fighter Aviation Regiment V.A. Zaitsev?>; The best tactician of the Soviet fighter aviation A.I. Pokryshkin never tired of reminding about this: "Look for the enemy. Neon you, ata must find it. Surprise and initiative is a victory. How much easier it was for the Germans to achieve it with their bet on a targeted search for an enemy can be judged by several combat episodes of the Battle of Kursk, described by A.I. Rusetsky in his work on the E \! 190 aircraft.

On July 6, 1943, a dozen Yak-76s of the 163rd Fighter Aviation Regiment of the 336th Fighter Aviation Division of the 16th Air Army of the Central Front patrolled over the northern face of the Kursk Bulge, in the Ponyri-Malo Arkhangelsk region. Suddenly, it was attacked by E\! 190 emerging from above from the clouds - and one of the "yaks" was immediately shot down ...

On August 5, three La-5 aircraft of the 181st Fighter Aviation Regiment of the 235th Fighter Aviation Division of the 2nd Air Army of the Voronezh Front, covering their troops in the Kuleshovka-Orlovka-Gumzino-Tomarovka area (west of Belgorod), were similarly suddenly attacked from above "Focke-Wulfs" - and in the same way they lost one plane in the very first moments of the battle ...

The eight La-5 of the 482nd Fighter Aviation Regiment of the 322nd Fighter Aviation Division of the 15th Air Army of the Bryansk Front, which patrolled on one of the August days of the 43rd district of Moschenoe - Rogachevo - Klemeno-

in (Oryol region), the echeloning of their forces in height did not save either - when the strike link was covered from the attacks of the "hunters" by others flying higher. Two pairs of E\!190s suddenly fell on both the attack and covering wings - and again immediately shot down one aircraft ...?

And here is a chronicle of one day of combat work of the 900th Fighter Aviation Regiment of the 240th Fighter Aviation Division of the 1st Air Army of the 3rd Belorussian Front - June 23, 1944, the first day of the Vitebsk-Orsha operation.

Six Yak-9s were escorting attack aircraft heading to the Orsha region, when they were suddenly attacked by BE109s that fell out of the clouds - and immediately lost junior lieutenant G.V. Pozdnyakov to a downed car ...

After some time, four from the same squadron, performing a similar task in the same area, also underwent a sudden attack from the clouds - and the Yak-9 of junior lieutenant M.V. Ichelin was again instantly shot down ... 28

Particularly dangerous were the inevitable

back and forth air patrols made 180° turns. In January 1945, east of Lake Balaton, H. Lipfert, who was then flying in the II group of the 52nd fighter squadron, recalled that the fighters of the 17th Air Army of the 3rd Ukrainian Front “almost always patrolled over a precisely defined area and had to fly along the same route with fixed turning points. I kept unnoticed above them until they started to turn. When the presenter entered the left turn, everyone else was completely busy trying to save

thread their positions and don't collide with each other. This was the most opportune moment" to attack them...?? In general, notes D.B. Khazanov, both in the 42nd, and in the 43rd, and in the first half of the 44th, the Soviet “hawks” suffered the “greatest losses” precisely from the sudden attacks of the “hunters” (“as well as in large group battles, due to the well-established interaction of German pairs and fours”)30 ... It was easier for the German “hunters” to maintain the initiative in battle even after the first strike. Indeed, before the start of the battle, Soviet air patrols and escort fighters were forced to keep their speed far from the maximum. Otherwise, it would be difficult for the former to stay within the boundaries of a given area and withstand (due to increased fuel consumption) the specified patrol time, and for the latter to stay close to low-speed attack aircraft and bombers. True, the patrols sometimes used "swing", i.e. periodic climbs followed by a dive and flight at an increased speed, gained without an increase in engine speed, due to the acceleration of gravity “turned on” during a dive. But to catch up with the German "hunters" - flying at speeds close to the maximum - it still did not allow. Thus, by the beginning of the battle, the Germans had a guaranteed superiority in speed. And this increase

their chances of leaving with impunity after delivering the first strike and taking up an advantageous position for a new attack... Of course, the direct escort of attack aircraft made it possible - albeit in an unreasonable way, without destroying, but only pushing the enemy back - but still preventing the enemy from dispersing the group attack aircraft, and, accordingly, the disruption of a strike against enemy troops; not for nothing that the Germans did not completely neglect them. (Daito V.A. Tikhomirov from the 12th Fighter Aviation Regiment of the Navy Air Force even during the war years proved that there was no reason to "hang out" near the "attached" fighters covered, that, having "freedom" and "maneuver", he would cover them " Whenever he can, he will complete the task more reliably." "I won most of my victories with escort," Tikhomirov emphasized in our day, "so I know what Ryu is talking about!"

the method of air patrolling was doubly irrational! Making it difficult to destroy enemy aircraft, this method did not allow reliable cover for friendly troops (even if not destroying, but only pushing back enemy bomb carriers or attack aircraft). In the case described above with the attempt of the Germans to bomb the crossing across the Krom, the air patrols of the 163rd Regiment were able to accomplish this task (although not a single bomber was shot down) - but this was far from always the case. Not only did the patrol pilots sometimes watch not so much for the attack aircraft of the enemy, but rather so as not to be subjected to a sudden attack by fighters. The desire to cover absolutely everything, to be strong everywhere, led to dispersal of forces, to the fact that Soviet fighters were often not strong anywhere - they were completely absent where and when German bombers or attack aircraft struck. For example, E.I. Malashenko in 1942-1943, fighting on the North-Western Front as a reconnaissance commander in the 33rd and 117th rifle divisions and the 15th Guards Marine Rifle Brigade, observed only the following picture: "Our planes sometimes arrived in small groups (2-4 planes) and patrolled when the German planes flew away. While patrolling over Murmansk on February 28, 1943, the fighters of the Air Force of the Northern Fleet alone (not counting the 122nd Air Defense Fighter Division) made 58 sorties - but "did not have any encounters with the enemy." Meanwhile, the city was subjected to three raids that day! On July 24, 1943, the North Sea "jar trebka" carried out 64 sorties to cover the BK-13 convoy going from Arkhangelsk to the Kola Bay, but had only one "visual contact" with the enemy. Meanwhile, the latter attacked the convoy from the air twice without hindrance![33] One can also point to the same Battle of Kursk. Assessing the work of the fighters of the 2nd Air Army of the Voronezh Front at the defensive stage of the battle (July 5-23, 1943), Deputy Chief of Staff of the Red Army Air Force N.I. ,

when our fighters were not in those zones where the situation required, they did not look for the enemy, they acted

passively or `simply ironed the air'. And as a result, "separate groups of bombers got the opportunity to bomb our ground troops with impunity"34. The same was noted by Colonel M.N. Kostin, who analyzed the actions of the troops of the Voronezh Front in the defensive operation on the Kursk Bulge. Fighter aviation of the 2nd Air Force, he pointed out in his report of August 23, 1943, “allowed enemy bomber aviation to bombard our combat formations in an organized manner. The reason is that our fighter aircraft performed purely passive tasks - covering the area where our troops were located, patrolling and directly escorting attack aircraft, while fighter aircraft did not perform active combat missions. Worse, the enthusiasm for the method of air patrols did not even allow for powerful bombing attacks on enemy troops! Having reinsured themselves, so many fighters were thrown on patrol that they were no longer enough to escort the bombers - the bombers of the 2nd Air (Pe-2 of the 1st Bomber Air Corps) were not brought into battle on the most difficult days of the battle, July 6-11. ..

Even brighter was the inability of the Soviet command to use its numerous fighter aircraft in defensive battles on the northern face of the Kursk salient. Here, on July 5, 1943, a paradoxical situation arose when 186 German fighters turned out to be enough to create, according to the Soviet side, “a powerful air curtain” in front of their bombers and terrorize Soviet attack aircraft, and 386 combat-ready pilots fighters and 455 serviceable "hawks" of the 16th Air Army of the Central Front were not enough either to neutralize the German bombers or to provide cover for their attack aircraft. The Soviet command also dispersed its forces here, forcing part of the fighters to loiter over areas that were not threatened from the air (for example, Mer, over the routes along which the 2nd Panzer Army advanced into the battle area Las). The Germans, on the other hand, threw all their few fighters into the area of \u200b\u200bthe main strike of their

troops - the area in which their bombers were supposed to work - in order to purposefully search for Soviet fighters and destroy them even on the way to the battlefield. As a result, according to the testimony of the senior officer of the General Staff at the Central Front, Colonel V.T. carried out bombardment and shelling of our battle formations to the entire tactical depth [...|”37.

But even on May 14, 1943, the first deputy commander of the Red Army Air Force, G.A. Vorozheykin, reminded the commanders of the 2nd and 16th air forces:

usually, all air battles take place on the decisive lines of action of our ground troops "...38

Nothing has changed at the offensive stage of the Battle of Kursk, in the Oryol operation. Thus, on July 16, 1943, German bombers bombed the 11th Tank Corps of the 11th Guards Army of the Western Front with impunity all day long. The fact is that the fighters of the 1st inflated army, allocated to cover the corps from the air, again had the task not to clear the airspace in the path of the tankers' advance, but to patrol over certain areas; in this case, over the area in which the corps, according to the plan of operation, was supposed to reach by the 16th. Therefore, all that day they uselessly "iron the air" over the vicinity of the Khotynets station - and the tankers who were delayed on the way to it turned out to be without cover ... Aircraft of the 2nd Fighter Air Corps (which was part of the first, the 1st Air Army of the Western, and then the 15th Air Army of the Bryansk Front) carried out 4100 sorties during the Oryol operation, but air battles with the enemy were fought only in 989 of them39, i.e. less than 25%. With this use of fighters, the representative of the Headquarters of the Supreme High Command on the Western, Bryansk and Central Fronts, N.N. ". According to Voronov, in the Oryol operation "we had to have for three fronts

Comrade up to 1000 fighter aircraft "" 0 - twice as many as the Germans had on the entire Soviet-German front!

Avijune - July 1944, during the Belorussian strategic operation, the 1st and 3rd air armies (respectively, the 3rd Belorussian and 1st Baltic fronts) already had more than 1000 fighters "!, But still they could not securely cover your tank corps! "We met Russian fighters very rarely," testified V. Gail, a former pilot of the 3rd group of the 3rd assault squadron of the Luftwaffe, who then bombed Soviet tanks in Northern Belarus. "Personally, I saw them only 2 times [...]". Although, he added - apparently feeling the paradoxical nature of his testimony - "more experienced people say that in the spring of 1944 Russian fighters were as active as ever"4?. However, there is really no paradox here - the Soviet fighters again "just in case" covered all directions in a row - so that the main ones sometimes found themselves without proper air protection ...

"The art of the chief, who uses and controls the actions of fighters, is precisely to ensure, even with small forces, at the right time, in the right place, numerical superiority [...|," rightly noted in July 1942 the commander of the Red Air Force armies

A.A. Novikov43. As you can see, the Soviet aviation command did not differ in art - and preferred to take in numbers ...

Of course, in 1941-1942, when the majority of Soviet fighters did not have radio stations, and the warning system about the appearance of an air enemy was poorly established, it was unwittingly necessary to keep a lot of fighters in the air "just in case". But since the autumn of 1942, radio receivers were installed on all newly produced fighters, and radio transmitters were installed on parts, and in the Lada dock in the name of I.V. Stalin dated February 3, 1943, the commander of the Red Army Air Force A:A. proposed "to give up covering troops on the battlefield by patrolling and resorting to it in extreme cases, and to consider the duty of fighters at forward airfields and calling them by radio as the main method"44. This would minimize the number of vain, not culminating in a meeting with

as an air opponent of sorties, and would also allow meeting German attack aircraft while still approaching the front line. The fact that tying fighter aircraft “to a certain object, area or a group of bombers and attack aircraft covered” “disperses its efforts, leads to an excessive expenditure of forces and resources and deprives fighters of the opportunity to conduct active offensive combat, which is the only means of destroying enemy aircraft in the air ", was again noted in A.A. Novikov's directive of July 7, 1943^5, which proposed to practice both "free hunting" and clearing the airspace in front of their attack aircraft, and when using patrols, redirect patrols by radio who in vain "iron the air." The commander of the 2nd Fighter Air Corps, Lieutenant General A.S. Blagoveshchensky, in August 1943, also proposed to cover the troops by the method of sorties on call from ambush - from advanced airfields located only 8 km from the front line. Delb was not limited to proposals: for example, already on July 8, 1943, in the 1st Guards Fighter Aviation Division of the 16th Air Army of the Central Front, a successful experience was made in clearing the air, and in the 2nd Fighter Air Corps of the 1st Air Army of the Western Front, back in In July, they tested the method of flying by calling a pair or four sent to reconnoiter the air situation ... However, covering ground troops by continuous patrols in the air over their location was widely used until the very end of the war!

It may, of course, be pointed out that the widespread use of "free hunting" was hindered by the lack of training of the majority of Soviet fighter pilots. And as early as 1943, the weak operation of the guidance stations prevented the transition to covering one's own troops by the method of sorties on the call of a guidance radio station. In the 16th Air Army of the Central

th front in the first days of the Battle of Kursk, these stations were located ...
4-5 km from the front line - and after all, the Luftwaffe then worked precisely along
the "front". Guard Lieutenant Colonel Berezova from the headquarters of
the 8th Air Army of the Southern Front, analyzing the combat work of
her "hawks" in the Mius

military operation on July 17-August 2, 1943, noted that “every gunner considers it
his duty to command fighters and give them instructions. And very verbose,
nervous, with the use of obscenities. Walkie-talkies clog each other. By this,
firstly, they do not give any opportunity for the leader of the group to give any
command to his followers and, secondly, the leader does not know what
command to execute. There is such noise and uproar on the air that the
pilots, apparently in the interests of preserving their ears, turn off the receivers.
In August 1943, at the end of the Oryol operation, the same thing, apparently
(and perhaps the imperfection of radio engineering), thwarted the
guidance of fighters from the 11th mixed air corps of the 15th air army of the
Bryansk Front from the ground. “All fighter pilots,” stated in the documents of
the corps, “complain that, as a rule, they do not hear the operation of the
guidance radio while performing combat missions” 7. At first, not all pilots
got used to the fact that now they have to follow the commands of ground-
based aircraft controllers. Thus, in the 6th Fighter Air Corps of the 16th Air
Army in the first days of the Battle of Kursk, the leaders of the groups
ignored the instructions of the stations to conduct; in the 2nd air radio, guidance
then performed its task only if the commander of the fighter air division or
corps worked for them ...

In the new years of 1944-1945, when, as even the Germans note,
"guidance of fighters by radio" in the Red Army Air Force "became a
general rule" * "8, the guidance technique was already sufficiently worked
out, there were already radar stations, which allowed fighters to lift their mother
into the air even before the enemy approached the front line, but they
still did not refuse continuous patrolling! In the 4th Fighter Air Corps of the 5th
Air Army of the Steppe (since November 1943 - 2nd Ukrainian) Front,
during the battle for the Dnieper in the autumn of 1943, they were convinced
that "free hunting" and sorties to intercept when called by a radio station guidance
makes it possible to shoot down or disperse enemy aircraft much more often
than continuous patrolling. Nevertheless, this latter remained the main method
of using the fighters of the 4th Corps even during the air battle in the Yass
region.

May 30 - June 8, 1944 Why? The answer given in June 1944 by corps commander
ID Podgorny looks truly amazing. “Still, we have to continue

taxiing," the commander said at a conference on the exchange of experience, "due to the moral satisfaction of the ground troops, especially the infantry, who feel confident when their fighters are constantly in the air" ...

As is known, fighter aviation exists to fight enemy aircraft, and not to raise the morale of ground forces. But it seems that the Soviet aviation command really cared about the mood of the infantry here! The commander of the 9th Guards Fighter Aviation Division of the 8th Air Army of the Southern Front, I.M. in September 1943...50 In any case, no other explanation has yet been found for such a stubborn commitment to continuous patrols over one's own troops.

Well, what we found once again confirms the lack of professionalism of the Soviet aviation command that we have already noted. Judging by the "correct" directives of Novikov and the apologetic tone of Podgorny's explanations, it cannot be said that they did not know the basics of military art, known since the time of Epaminondas and requiring concentration of their forces in the right place at the right moment. However, they did not skillfully or did not want to apply their formal knowledge in practice.

3. AIR COMBAT TACTICS

It is not enough, however, to get the opportunity to meet the enemy in the air and start an air battle with him - this battle must also be correctly planned and competently carried out. And another reason for the lesser effectiveness of Soviet fighter aviation compared to the German one was the lower efficiency of the most used

by Soviet fighter pilots of air combat tactics.

First, for a long time the Soviet "hawks" fought air battles with German fighters, adhering to passive, defensive tactics. Instead of attacking the enemy, they built a "defensive circle", i.e. they successively entered a turn and flew one after another in a circle - so that the tail of each aircraft turned out to be covered by the one flying behind. If the Germans were also fighting in a horizontal plane, then Soviet fighters really became hard to hit: it was impossible for them to go into the tail, and when firing at an aircraft describing a circle from the side, it was very difficult to take the lead correctly. But here's to knock down the enemy circling

planes couldn't. Naturally, the Germans did not try to get into the "circle", but to fire on the "Messerschmitt" rushing to the side - so that at the same time not to fall out of the "circle" - it was possible only by making a small turn in the direction of the enemy and then turning it back. In other words, it was possible to shoot only "offhand", almost aimlessly - i.e. conduct, in essence, only barrage fire, from which the enemy could easily evade. A similar situation is described, for example, by A.V. Vorozheykin, recalling one of the battles of the I-16 of his 728th Fighter Aviation Regiment of the 256th Fighter Aviation Division of the 3rd Air Army of the Kalinin Front with VYa 09 at the end of 1942: “Our circle looked like a rapidly revolving circular saw: no matter where you go, you can't take it. Aircraft, changing position, stretching in the right direction, sprayed machine-gun fire and even rockets in jets. "Messers", like pikes, rushed at high speeds quite close and every time they bumped into the sharp teeth of the saw, they bounced [i.e. avoided hitting NI. — 4A.S.]”71.

However, the Germans did not necessarily fight in the horizontal plane, i.e. hovered next to the "circle". Often they - using their favorite short blows in the vertical plane - fell on the "circle" from above. And to repel an attack from above, planes flying in a horizontal plane in a circle and not wanting to break this

"circle", could not in any way: for this it was necessary to make too sharp a maneuver ... In general, becoming a "defensive circle" - i.e. By voluntarily refusing to maneuver in combat, Soviet fighters not only reduced their chances of shooting down an enemy aircraft, but also did not always avoid the danger of being shot down themselves. But, according to the Germans, “the defensive circle as the main tactical method of defense” was “actively used by the majority of fighter units” of the Soviet Air Force even in 194352. According to V. Schwabedissen, the "defensive circle" was the "favorite battle formation" of Soviet fighters even in 1944-1945. (This statement strongly disagrees with the general conclusion of the German general, according to which, "usually" Soviet fighters at that time "acted skillfully" and "fought with German fighters persistently and decisively." However, Schwabedissen repeats: in the last period of the war " Soviet fighters often formed a defensive circle before an attack...)53

In offensive combat, Soviet fighters for a long time were hampered by another tactical miscalculation - the use of "a densely assembled flight of three aircraft performing joint maneuvers at minimum intervals and distances" as the basis of the battle order. “It was believed that a closed battle formation better provides mutual support and allows you to deliver powerful

concentrated strikes against the enemy. However, “being in such a formation, the pilots were more careful not to crash into their partner’s plane or not to fall behind and, as a rule, neglected to monitor the air situation. This made them extremely vulnerable in combat. “When we sorted out the flight,” recalls the battles of early 1942 on the Western Front, G.I. the answer is: "No one but you." “This,” Herman points out, “was the main reason why we were short of our wonderful comrades in arms, as a rule, those who were on the last line in the ranks [i.e. slaves - closely watching

commander's maneuvers. — A.S.]”55. In addition, the need to maintain a tight U-shaped formation, to maintain minimum intervals and distances did not allow maneuvering at high speeds, and therefore, to overtake the enemy or break away from him. The end result was still the same: a decrease in the number of downed German aircraft and an increase in the losses of Soviet fighters.

True, in some places - for example, on the Northern (renamed Leningrad on August 23, 1941) Front - Soviet fighter pilots, on their own initiative, already from July 1941 used a pair of aircraft as the basis of battle formation. The fighters in it flew at intervals and distances increased in comparison with the trio, and the risk of crashing into a neighbor became incomparably less. Thanks to this, the pilots were able to fight at high speeds - necessary to maintain the initiative in combat - and also to pay more attention to the observation of the air. In addition, open intervals allowed each of the pilots of the pair to survey a much larger area than before, behind the tail on the greenhouse - and, therefore, more effectively cover each other ... However, the construction of a battle formation of pairs, and not triples, was legalized only in November 1942, and mastered in all parts - and only in the 43rd. According to the testimony of non-commissioned officer I. KalbaZ6, pilot of the 52nd Luftwaffe fighter squadron, captured on September 16, 1942, in the 42nd, many Soviet pilots still flew in pairs so that they deprived themselves of the opportunity to cover each other. Two "hawks" flew not in the "front" formation with an interval of 200-250 m, but one after the other or in the "bearing" formation (i.e., in a ledge one after the other). As a result, the leader could not cover the follower, because he did not see at all what was happening in his tail. And the Messerschmitts, calmly going into the tail of the wingman, shot down first him, and then the leader who was left without cover ... “In the tactics of our fighters,” it was stated in the already mentioned directive of the Red Army Air Force commander of July 7, 1943 , — the undeveloped actions of a separate pair continue to take place ...> 7 The Germans, on the other hand, flew in pairs from 1938-1939, from the time of the war in Spain and the Polish campaign of the Wehrmacht. "Big bills

I attribute the victories of the German pilots to a large extent to this tactic,” wrote H. Lange directly, who fought on the Eastern Front, first in the 54th and then in the 51st Fighter Squadron?8.

The German fighter pilots were also given huge advantages by the fact that, unlike the Soviet ones, they “were initially focused not on maneuvering combat, but on performing surprise attacks with escape at a speed close to maximum, and mainly in a vertical plane” ?E9. ‹(...] Ikhataks, — Soviet staff officers noted in 1943, — in the overwhelming majority come down to a short attack from above with a steep slide up after the attack”60. (The same is evidenced by those who fought from the end of 43 to the end of the war, GG. Cherkashin from the 672nd assault aviation regiment and V.A. Tikhomirov from the 12th fighter aviation regiment of the Navy Air Force: “They will jump out of the clouds in a pair or four, dive, hit, shot down or not - it doesn’t matter, afterburner, and a candle back into the clouds"; "always the same thing: an attack at speed and an attempt to go up"... 1) "This made it possible to quickly organize a new attack [i.e., maintain the initiative in an air battle. — A. S.] and minimized the likelihood of falling under return fire in the event of a miss and subsequent slipping [forward relative to the attacked aircraft. - A.S.] "62. After all, while diving, the fighters gained such speed that at the end of the attack they could - due to acceleration inertia - soar upwards literally like a “candle.” And this not only made it easier for them to quickly take a position for a new attack from a height, but also created a large angular displacement, which made it difficult for Soviet pilots to aim ... In addition, vertical maneuver, collapsing on the enemy on high speed from above made it easier to achieve surprise strikes. The Germans generally attached exceptionally great importance to the latter circumstance. They attacked, as a rule, from the direction of the sun or because of the clouds, which allowed them to remain unnoticed until the very end - and if it was impossible to achieve surprise, they often abandoned the attack altogether and waited for a more favorable moment. Show

flax air battle, which took place on April 23, 1942 in the area of the Vaenga airfield near Murmansk. Five V109E-4 from the P group of the 5th fighter squadron, being attacked by a link of "Hurricanes" from the 2nd Guards mixed air regiment of the Air Force of the Northern Fleet, did not accept the battle and went into the clouds. The Soviet "hawks" followed her, but "when leaving the clouds, the blinding rays of the sun hit the eyes of the Hurricanes pilots, masking which, the remaining invisible Messerschmitts rushed at them."

As a result, two of the three Soviet fighters were shot down; the Germans suffered no losses...63 It is also indicative that 90% of all attacks carried out by the most successful German ace of the Second World War — E. Hartmann from the 52nd Fighter Squadron — were, in his estimation, sudden." It is impossible not to notice that the tactics described above fit into the famous formula of A.I. Pokryshkin "height - speed - maneuver - fire". The Soviet ace based it on the same considerations: "Height is speed, speed is height. In other words, maneuvering from a height gives speed, and speed allows you to climb vigorously. The high-speed maneuver along the vertical ensures the suddenness of the impact and creates large angular displacements. The most advantageous vertical maneuver is the "falcon strike", sudden, fast, accurate [i.e. describe the above German short dive attacks! — A.S.]"65. In the description of fellow soldier Alexander Ivanovich A.I. Trud, Pokryshkin's manner of conducting air combat resembles the German one like two drops of water: "At high speed, it crashes into an enemy group from above, shoots some kind of aircraft and leaves" ... 66 However, Pokryshkin developed his own formula only in 1942-1943, the Anemians acted according to it from the very beginning of the war with the USSR! For too long, Soviet fighters preferred Lee to "falcon strike" - sudden short attacks in the vertical plane - maneuverable battle in the horizontal plane, on bends, when the planes, circling one after another, try to get into each other's tail. This not only made the Red Star Hawks more vulnerable (due to the fact that they were in the field of view of the enemy longer), but also deprived them of the initiative in battle. After all, ini

the one who developed the greater speed (and could, therefore, quickly take a new position for attack) owned the initiative. But if diving from a height made it possible to quickly increase speed, then on turns - in order not to create too large overloads during turns - it inevitably had to be extinguished ... Even in 1942, cases were common when Messerschmitts, using a vertical maneuver , fettered a significantly larger group of Soviet "hawks" maneuvering in a horizontal plane. A typical example is the July, August and September battles on the Western Front, in the regions of Rzhev and Zhizdra. "Systematic observation from the ground on the front line," S.A. Khudyakov, commander of the 1st Air Army of the Western Front, reported to the commander of the Red Army Air Force on September 26, 1942, "and control of the actions of our fighters, carried out by the commanders of air formations [so in the text. - A.S.] from the armies to the link inclusive, irrefutably indicates that German fighters, as a rule, hold the initiation of the battle in their hands, attack only in favorable conditions [...] ". As a result, "in combat operations of recent months, our aviation has suffered heavy losses from enemy fighters"67. So, the 201st Fighter Air Division for

twenty days of the first Rzhev-Sychevsk operation, more than 90% of its aircraft were lost: by August 24, 1942, only five fighters remained in its three 20-aircraft regiments ... to achieve success in a battle with VY09S-2, it is necessary that for each "Messerschmitt" there were two Yak-1 or Yak-7b ... 69

It is usually believed that in the spring of 1943, during the air battles in the Kuban, the situation improved. “The great achievement of the Soviet pilots,” noted, for example, evaluating the results of the Kuban battles, their participant A.I. Nokryshkin, “was a massive transition to vertical maneuver”; the “combat vertical”, according to him, “firmly entered” “the daily practice of fighters” 0. But this applied only to a few fighter aviation regiments, such as the 16th Guards, in which Pokryshkin himself fought in the Kuban, or the 45th and 298 (subsequently - acc.

100th and 104th Guards respectively). The pilots of these "elite guard regiments, equipped with allied aircraft", as the Germans admit, were indeed "distinguished by their secrecy of maneuver [i.e. use of the surprise factor. - A.S.], they were well separated in height, which made it possible to control the air situation [due to the use of vertical maneuver. - 4.S.] and minimize the risk of being attacked”; “The tactics of their combat actions were based on the precise implementation of the rule “attack-defense” [i.e. "falcon strike - going up." - A.S.] "... 1 But as for the bulk of Soviet fighter pilots, even in the directive of the commander of the Red Army Air Force of July 7, 1943, summing up the combat work of Soviet aviation in March - June 43- go - it was stated that "in air combat [...] surprise and superiority in height did not become the main principles that ensure its success"! And according to one of the leading aces of the Luftwaffe - H. Lipfert from the P group of the 52nd fighter squadron - the Soviet fighter pilots demonstrated their lack of desire to be higher than the enemy even much later. Until June 1944, Lipfert noted, "it was rare to meet a Russian above 4,000 m"'3; German fighters approached the battlefield at both 5000 and 6000 meters. It is clear that, without having superior height, it is impossible to carry out a surprise attack in a vertical plane ...

From the work of D.B. Khazanov, devoted to the air battle in the Yass region, it is clear that, thanks to the use of surprise and short attacks in the vertical plane, Soviet Messerschmitt fighters managed to dictate their will in battle as early as the end of May 1944. 74 Even in 1944-1945, the Germans noted, Soviet fighters still "relyed on maneuvering combat" (And "quite rarely" used "the advantages of foggy weather, sunrise or sunset")...75

In general, not only in 1941-1942, but also in 1943, in the general opinion of German aviation commanders, Soviet fighter pilots "in tactical terms"

“they were still weaker than the Germans” - although “throughout 1943 there was an “increase in the tactical training of command and staff personnel”! Moreover, for Luftwaffe commanders it was "undoubted" that even in 1944-1945, when Soviet fighters as a whole had already "adapted to the requirements of modern warfare and learned a lot", German fighter aircraft still had "more perfect tactics"? ".

The Germans also had more advanced defensive tactics for potential victims of fighters - bombers and attack aircraft. Accordingly, even other things being equal (and the Germans, as we have already seen and will see below, had many other advantages) it was more difficult for Soviet fighters to shoot down German attack aircraft than it was for Germans to shoot down Soviet ones. German bombers flew throughout the war in close, compact formation. This limited the number of directions from which each specific aircraft could be attacked by fighters, and also made it possible to concentrate machine gun fire from several aircraft at once on the attacker and create a dense curtain of fire in front of him. Even in 1944, W. Schwabedissen summarizes the assessments of German pilots, the losses of bombers flying in close formation and delivering “aimed concentrated barrage fire” against Soviet fighters, “were relatively small. Under such conditions, Russian pilots, as a rule, did not go on a second attack. The same, according to the Germans, back in 1944 was the situation with the L187 dive bombers: "As long as the German planes maintained a tight formation, the successes of the Russians turned out to be more than modest"? (for more details, see the chapters [Ui UP.

Soviet bombers and attack aircraft mastered such tactics only in 1944 - and as early as 1943, instead of closing formation and repelling attacks with concentrated fire from the entire group, they often tried to get away from German fighters at maximum speed. By this they directly helped the enemy to destroy themselves! The speed of Bÿ109E and Si E \\! 190A was still much more - but the system

Soviet aircraft were torn apart at high speeds, and the Germans easily shot down single ones, left without fire support from their neighbors and without cover for escort fighters.

driving (which after all could not be torn apart to help everyone) cars (for more details, see the chapters of Shi\U.).

4. QUALIFICATION OF AVIATION COMMAND AND PILOT

The less effective tactics of air combat compared to the German ones are largely, if not primarily, due to two other factors that made Soviet fighter aircraft less effective than the German one:

a) the low professionalism of Soviet aviation commanders and

6) weak in comparison with the German training of Soviet pilots. |

As for the command, as was shown above, the tactics of the Soviet hawks were already negatively affected by their use of most of the fighters for defensive tasks. Deprived of the opportunity to search for the enemy themselves, forced to passively wait for his appearance, Soviet air patrols and destroyer escorts, as a rule, could not use the most important tactical trump card - surprise strike. And being shackled by the task of staying within the boundaries of the cover area or near the attack aircraft being covered, they involuntarily gave the German fighters another most important tactical advantage - superiority in speed by the time the battle began. This made it difficult to seize the initiative in the ensuing battle.

The emphasis on the use of fighters as air patrols, and not air hunters, was made, as we remember, until the end of the war - and for reasons far from military art. And this does not seem to be the case! When solving purely tactical issues, the Soviet aviation command, back in the first half of 1943, demonstrated a downright anecdotal misunderstanding

the nature of air combat and the basics of fighter tactics (or the unwillingness to reckon with this nature and these basics, i.e., criminal irresponsibility). And how else to evaluate, for example, the order given in April 1943, at the height of the air battles in the Kuban, by the headquarters of the 265th Fighter Aviation Division of the 4th Air Army of the North Caucasian Front to fly ... in close combat formation, at low speed and low height? “All this, as we were explained,” wrote I.V. Fedorov, a former pilot of the 812th Fighter Aviation Regiment of this division, “inspires the defenders of Malaya Zemlya. The high command liked it: so to speak, the psychological factor for

earthly troops - the sky is covered with red star fighters"80. But after all, this order, one might say, gave them to be devoured by German fighters as easy prey for flying targets!

What use of vertical maneuver, "falcon strike" could be discussed if the order deprived Soviet fighters of the height advantage necessary to carry out such attacks?

What kind of initiative in air combat could we talk about if the order deprived Soviet fighters of superiority in speed?

What kind of high-speed maneuvering in battle could we talk about if the order drove Soviet fighters into compact trio formations, where the pilot monitored not so much the air situation as to avoid crashing into a neighboring "hawk"?

Involuntarily, I recall the phrase of I.V. Stalin, thrown by him in 1943 to the leaders of the People's Commissariat of the aviation industry in connection with the release of defective fighters: "This is work for Hitler!" 81

Another participant in the spring battles of the 43rd in the Kuban, N.F. Isaenko, who then flew in the 267th fighter regiment of the 236th -Caucasian front: <[...] The army command, no, no, and even demanded that we stay at the height of enemy bombers, and many pilots did not dare to disobey such orders [again, depriving

pilots of the advantage in height, and hence the ability to deliver a “falcon strike”. — A.S.]”82. It is clear that the general military authorities instructed ordinary pilots not directly, but through aviation commanders - and, therefore, they again followed the lead of the combined arms officers who did not understand aviation tactics ... Irresponsibility (or illiteracy?), All the more unforgivable because in The 43rd aviators were no longer directly subordinate to the combined arms command, with the exception of front commanders.

And what are the repeated cases when the commanders of aviation regiments and divisions forced their pilots to take off from the airfield, over which German fighters were already walking, lying in wait for the victim? Did these aviators really not know that on takeoff, not yet gaining speed and having no altitude reserve, the aircraft is absolutely defenseless and is a simple target? Or did they strive to display the "activism at all costs" so valued in the Red Army? In any case, these "strong-willed commanders" demonstrated a militant unprofessional

socialism - and, in fact, directly helped the Germans to destroy Soviet fighters. Because of such an order, given, for example, on one of the autumn days of 1942 by the commander of the 42nd Fighter Aviation Regiment F.I. Shin Karenko, three LaGG-3s and three pilots, one after another, died in vain from the fire of the Messerschmitts on takeoff, including one squadron commander (and this, according to the former navigator of the 100th Guards Fighter Aviation Regiment M.G. Petrov, “ the main figure in the war "...) 83. And the stupidity of the commander of the 258th mixed air division of the 7th air army of the Karelian Front, G.A. five vehicles of the 19th Guards Fighter Aviation Regiment. “The one who was at that time at the command post of the regiment,” recalled the veteran of this unit D.S. Goncharenok, “said: [the regiment commander. - 4.S.] Novozhilov after each flight of the aircraft reported by telephone to the division commander: "The third plane has released - it's on fire." "You let the next one," was heard over the phone.

"Released the fourth - shot down." "Release the next one!" 84 Direct work for Hitler again...

Are there not too many examples that make not only the Soviet aviation commanders appearing in them to refuse any kind of professionalism, but also to doubt their mental worth?

Against this background, another tactical mistake made by the Soviet aviation command, at least until the last year of the war, looks almost trifling. We are talking about the habit of sending too small groups of fighters (4-6-8 vehicles) to cover the ground troops. As a result, with the huge numerical superiority of Soviet fighter aircraft over German in specific battles, the Soviet "hawks" did not have such an advantage - or it was minimal. Of course (as we will see below), even in the summer of 1943, the use of groups of 12-18 vehicles still did not give any effect: due to the weak flight of pairs, fours and sixes, large groups fell apart in battle. But many aviation commanders proceeded not from an analysis of the level of training of the flight crew, but from a simple unwillingness to deviate from the usual pattern. For example, the June air battles of 1944 in the Yass region showed that the air patrols of the 5th Air Army of the 2nd Ukrainian Front could well operate in groups of 12-16 aircraft. However, in the first two days of the air battle over Iasi - 30 and 31 May 1944 - sixes and eights were still sent to cover the ground forces ...

One gets the impression, nevertheless, that the misfortune of the Soviet aviation command was not that

it was deprived of knowledge, but that it simply did not want to think - to apply its knowledge, learn from mistakes, study combat experience - and preferred to follow the path of least resistance, along the knurled track, even if once on the same rake... Apparently, the low overall development of a typical Soviet commander of the times of the Great Patriotic War - as a rule, a native of a working or peasant environment, who did not receive before entering the military

an educational institution of secondary (atomic and incomplete secondary) education, and hence the habits of mental work. “As you know,” recalled S.N. Bogomyagkov, deputy head of the 2nd department of the General Staff of the Red Army in 1935, “tactically competent commanders are 99% people with good general development and a broad outlook. Exceptions are single"? >. Meanwhile, on the eve of the Great Patriotic War, 46.2% of Soviet aviation commanders, starting from the regiment commander and above, had only primary general education! dated April 16, 1943, the head of communications of the corps, Major F.M. Smolnikov. (Recall that the diaries are not intended to be read by others, and therefore their authors are usually sincere in their judgments and assessments.)

“At a meeting.

Reports of com-s av. divisions Sukhoryabov, Litvinov. Sukhoryabov reads his report, apparently, they wrote to him, but he didn’t even bother to read it. I read "my" report in places in warehouses. Many numbers from memory of combat and non-combat hours [of the raid. - A.S.]. He said very little about aerial combat, and what he said (read), we know. There is little instructive, almost nothing.

Litvinov. He spent all his time (30 minutes [minutes — A.S.]) talking about the work of the headquarters. He talked a lot and not at all about the combat department, that there was no typewriter. It's a shame, by God, ashamed of the com-s av. divisions. Was there really nothing to talk about, after all, for a month now we have been fighting on the Voronezh front! 87

We emphasize that these are the very first two commanders of fighter air divisions that appear before us, which are discussed in the first published diary of a front-line aviator that did not pass Soviet censorship!

Let us now compare the level of training of the pilots of both sides. The opinion of the respondents already at the beginning of the twentieth] century. Soviet fighter pilots of the Great Patriotic War on the level of their German opponents coincided not only with those who fought with

1941 I.D. Gaidaenko (“They were very good, trained pilots”), V.I. Klimenko (“The Germans had weak pilots, but mostly they were very experienced fighters”) and A.E. Shvarev (only towards the end of the war, as they say, “burdocks” began to come across, in which “the maneuver is not the same, and the shooting is not the same”), but also among those who encountered German fighters only at the end of 1943-1945. L.Z. Maslova (“([...] They were good pilots”), V.A. Tikhomirova (“I always respected them. Those who neglected them were shot down. [...] They have many good pilots was [...]") and K..G. Zvonareva ("Good pilots. Only at the end of the war did weak pilots appear, but there were strong pilots"). . N.G. Golodnikov (“At the beginning of the war, the German pilots were trained (I’m not afraid to say this) almost perfectly”, but since 1943 “they went to the front pilots whose quality of training became noticeably lower”) and I.I. Kozhemyako (“In 1943, when I arrived at the front, the Germans had about an equal number of experienced and inexperienced pilots. Then the number of experienced pilots began to decrease, and already in 1944, experienced ones accounted for hardly a quarter of the total number”) 88.

When comparing the level of training of German and Soviet pilots by veterans, the range of opinions turned out to be large. N.G. Golodnikov from the 2nd Guards Fighter Aviation Regiment of the Navy Air Force believes that already in 1943, German fighter pilots began to yield to the Soviet ones - and not only in the ability to conduct a maneuverable battle (which, in general, is not surprising; see below). above - A.S.), but also in tactical training. Others argue that a rough parity was achieved in the course of the war. Only in the opinion of V.I. Klimenko, the pilots of his 1st Guards Fighter Aviation Regiment were “on equal footing” with the Germans after years of non-autumn fighting in 1942, and from the words of the one who came to the 814th (then - the 106th Guards) fighter June 1943 by N.E. Bespalov, we can conclude that equality was achieved no earlier than the end of 1943: “Our old cadres corresponded to their level, the youth pulled themselves up. Later, when the experience came, it seems that we began to do well. The main backbone of the regiment could fight with them on

equal, and in some cases even beat them. Approximately the same follows from the statements of B.S. Dementeev - who fell to the front, in the 101st Guards Fighter Aviation Regiment, only in October 1943, but before the end of the year he still managed to collide with aces over the Taman and Kerch peninsula P group of the 52nd fighter squadron: “They had better military training. Again, more experience. [...] After 1943, when they won air supremacy, the Germans were not the same, even their aces were not the same. From

the assessment given to German pilots during the war by Bespalov's fellow soldier K. G. Zvonarev (the Germans "were not inferior to us either in moral-volitional qualities or in piloting technique"), it is clear that, in the opinion of this one who began to fight in July 1943 pilot, equality in the training of Soviet and German fighter pilots was maintained until the end of the war9.

_And here are the words of A.E. Shvarev can be regarded as a recognition that the enemy's training was better until the very end of the Great Patriotic War: "The Germans, of course, had more experience, and better training. This was especially felt at the beginning of the war [and to a lesser extent, it turns out, at the end. — A.S.]"30. He also spoke about the entire Great Patriotic War as a whole — having stated in an interview given to him in 1997 that German fighter pilots had "much higher training" — and one of the best Soviet aces V.I. Popkov, who fought in the 5th Guards Fighter Aviation Regiment from the spring of 1942 until the end of the war?

Opinion of A.E. Shvarev and V.I. Popkov coincides with the general opinion of Luftwaffe veterans. According to this latter, "the training of Russian fighter pilots and their experience were significantly inferior to the combat training of German pilots" not only in 1941-1942. , but even at the end of 1943. The Germans not only insisted on this, but also believed that it was precisely for this reason that the Soviet fighter aircraft failed to win air supremacy in 1943, and achieved - by the autumn of 1943 - only a "balance of power". Even in the elite guards units, Luf Twaffe veterans claimed, the "general level of flight personnel" in 1943 was "not

higher than in ordinary German squadrons and regiments [more precisely, in detachments and groups. - A.S.] "E2. But the training of the pilots of the guard units (as G. Rall, who fought on the Eastern Front, clarifies, in the III group of the 52nd fighter squadron, from June 41 to the end of April 44) was "much higher than the rest"? 3 ... True, the former non-German aviation commanders noted, already in 1942-1943. in the Soviet fighter aviation "a large number of good pilots and lower-level commanders appeared"94. "In 1943," W. Schwabedissen points out, "German pilots had to deal with many Russian pilots and even individual air units, which, in their skill, were almost equal to them." And at the end of the war, this author sums up, even "the average Soviet fighter pilot became a worthy adversary"?5. And yet, according to the unanimous opinion of the former Luf Twaffe commanders - the respondents of W. Schwabedissen - "individually, Soviet fighter pilots were weaker than their German opponents" even in 1944-1945. 6

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About what else, at least by the autumn of 1944, the gap

in the level of training of fighter pilots of the two armies, it only decreased, and did not disappear, another source testifies - the protocol of interrogation of a pilot shot down on August 22, 1944 over the Sandomierz bridgehead [of the group of the 52nd fighter squadron of non-commissioned officer R.-D. Schaefer. The information from this source seems to us very weighty. After all, firstly, unlike the aforementioned German aviation commanders - this pilot, who managed to win only 5 official victories, arrived on the Eastern Front at the end of the war, he was not a witness to the progress achieved by Soviet fighter aircraft after 1941 - and to compare Soviet pilots of 1944 could only with German pilots of the same time. Secondly, Schaefer was in captivity - and prisoners usually tend to say what is pleasant for interrogators to hear. Nevertheless, the assessment of the German turned out to be unambiguous and impartial for the Soviet side: “the level of training of average Russian pilots remains insufficient; they are especially inferior to us in performing complex aerobatics”? E7.

Schaefer's assessment is actually confirmed and remember

knowledge of I.N. of the air army of the 3rd Baltic Front then no one could compete with the pilots opposing it [and P groups of the 54th Luftwaffe fighter squadron. In fact, in order to neutralize the Grünhertz pilots, in September 1944, in the band of the 3rd Baltic, in Latvia, a group of “air hunters” had to be transferred from the 1st Belorussian, from Poland - a dozen La-7s from the kozhedu Bovsky 176th Guards Fighter ... The fact that by the summer of the 44th in the Soviet fighter aviation, "along with experienced officers who commanded squadrons and regiments", "there were many "yellow-mouthed youths"", emphasizes and D .B.Khazanov?8.

On the superiority of German fighter aviation over the Soviet in terms of the average level of pilot training even in 1943-1944. Soviet statistics also testify to the effectiveness of air attacks carried out by fighters. According to it, in the summer of 1943, 75% of the Soviet bombers and attack aircraft shot down by German fighters were shot down in the first attack?. Of the "hawks" lost for the same reason in October 1943 - June 1944 by the 4th Fighter Air Corps of the 2nd Ukrainian (until October 30, 1943 - Steppe) Front, the percentage of victims of the first German attack was 85, 2 - and the remaining 14.8% were shot down in the second. Meanwhile, of the German fighters recorded on the combat accounts of the Red Army Air Force fighter pilots in July 1943 - April 1945, only 67.4% were shot down in the first attack, as many as 23.7% were shot down in the second, and 8, 9% were considered shot down only in the third and

next!00. In fact, the percentage of victims of the first non-German attack could have been even lower: after all, the planes that escaped from the attack in afterburner (and therefore smoked heavily) or dives could be taken as shot down ... Of course, on the percentage of those shot down in the very first attack should have been affected by factors that did not depend on the skill of the pilots - more powerful on average than the Soviet ones, the armament of German fighters was second in

lovins 1943-1945 (see about this in section 5 of this chapter) and the "free hunting" widely used by the Germans, which provided favorable conditions for delivering the first strike. And yet, I think, we must agree with V.I. Perov and O.V. Rastrenin that the percentage of those shot down from the first attack is primarily an indicator of the level of individual skill of the pilot! 0!. Moreover, what is very important, it is an integral indicator that characterizes the level of both flight, and tactical, and shooting training of the pilot. Indeed, in order to succeed on the first attempt, the pilot had, firstly, to take the most advantageous position for firing (and for this he had good command of his car and rational maneuvering), and, secondly, to accurately hit the enemy aircraft in the most its vulnerabilities (and for this to be a well-trained shooter).

In general, if the average level of training of a Soviet fighter pilot caught up with that of a German, then, apparently, only in 1945 (or at the very end of the 44th). This conclusion is not contradicted by our favorite indications about the death in the second half of the war on the Eastern Front of many aces of the Luftwaffe. More often than before, they were supposed to be shot down at that time already because in 1943-1945. The numerical superiority of the Soviet Air Force became (as we have seen) simply overwhelming. “The hail of lead and steel that fills the air,” R. F. Toliver and T. J. Constable reasonably remark, “made it absolutely inevitable for any pilot to one day find himself in the path of such a deadly squall. [...]| Ho ta Hartmann, Rall, Barkhorn and other top German aces were the most skilled fighter pilots of all time [the statement is, of course, debatable. - A.S.], numerical inequality turned against them. The elementary theory of probability led to the fact that they were shot down one way or another.

The best training of German pilots is not surprising: since the end of the 30s. the training provided by the Soviet flying schools was frankly inadequate. Hypertrophied quantitative growth of the Soviet Air Force in the 30s. forced to release pilots with insufficient flying time -

in order to give them more flying practice, there was not enough training and training aircraft, nor fuel. So, in the spring of 1939, there were 10-12 cadets per training aircraft in the Air Force flight schools (in combat units - only 3-4 pilots). As a result, noted on May 17, 1939, at a meeting of the Main Military Council of the Red Army, Colonel Mittelman, deputy head of the Department of Military Educational Institutions of the Red Army Air Force, “instead of proper training, schools train cadets before exams, and this leads to someone that people after a short period of time lose their skills [...|»103. “Aircrew arriving [from schools. - A.S.] in military units, for the most part does not meet the requirements of the Air Force in terms of flight, - wrote in the same year to People's Commissar of Defense K.E. Voroshilov, Commander of the Air Force of the Moscow Military District, brigade commander I. Eremenko! 94. “It’s just a crime to let people out of school with such a short summer,” Voroshilov himself was indignant after the aviators at a meeting of the Main Military Council on May 17, 1939, “such people, of course, are not yet pilots!”05.

However, the situation not only did not improve, but also got worse and worse ... For example, the future fighter pilot N.A. Kozlov, studying in 1937-1939. in the Chuguev military aviation school, flew there on a combat aircraft (I-16) for 25 hours, and A.I. Pokryshkin in Kachinskaya in 1938-1939. (also on I-16) - only 10 hours 38 minutes! 6. By order of the People's Commissar of Defense No. 070 of June 4, 1939, this figure for each graduate should have been increased to 30 hours - however, G.A. Baevsky, who graduated from the Serpukhov Military Aviation Pilot School in November 1940, managed to fly into it on fighter (I-15 bis) only 22 hours 15 minutes, and released in the same 1940 from the Kachin school S. Amet-khan, V.I. Garanin, S.F. Dolgu shin, A.G. Kotov and V. A. Orekhov received in it only from 8 hours 01 minutes to 10 hours 24 minutes (on average 9 hours 03 minutes) of flight time on a much more difficult piloting than the I-15 bis, I-16!197 And by order of the People's Commissar of Defense No. 080 of March 3, 1941, the planned raid of a graduate on a combat fighter (I-15 bis or I-16) was also reduced - for schools of military pilots who were supposed to graduate

For the bulk of the fighter pilots, it was installed only at 15:00!68.

Meanwhile, the German fighter pilot, leaving the flight school, then had at least 80 hours of flight time on BE 09109 behind him. Mikoyan from the Kachinskaya school in August 1941 was released with only 85 hours of total flight time, and V.I. Klimenko in September 1940 from the Chuguevskaya school - from 40-45 (when, Vitaly Ivanovich recalls, we were in the combat regiment " experienced pilots began to check the piloting technique, they said: “Guys, you still need to learn,” and we actually began to master the I-16 again) ... 110

From year to year the content of school training became more and more inferior. So, by the already mentioned order of June 4, 1939, aerial shooting was excluded from the training program for newly recruited cadets (!) - the Air Force leadership did not come up with anything better to increase the time for practicing piloting techniques ... And in 1940- m - in order to reduce the accident rate - they stopped teaching aerobatics. (Somewhat better was the situation with the training of fighter pilots for the aviation of the Navy. So, N.G. Golodnikov from the Yeisk Naval Pilot School in June 194] was released with a flight time of not 40-85, but approximately 110- 120 hours (including on the I-16 - about 45, otherwise 10-30) and after training in shooting, and even air combat! 1.)

As a result, at the end of 1940 and the beginning of 1941, a mass of young pilots arrived in the fighter air units, who, as fighter pilots, were not trained at all! Thus, graduates of the Serpukhov Military Aviation School of Pilots, who were assigned to the troops in November 1940, never trained in the combat use of a fighter, or even in complex aerobatics; released in the summer of 1940 from the Borisoglebskaya school and in November from the Kachinskaya school, they mastered only takeoff and landing and piloting in the zone (i.e. flying in a circle). And in the 126th Fighter Aviation Regiment of the 9th Mixed Air Division of the Air Force of the Western Special Military District, by June 22, 1941, such pilots

lay the majority! ‹“|...] None of us,” recalled one of them, G.I. Herman, “who has never fired at either air or ground targets, no one has ever been a participant in at least a training air battle” ; each had only about 60-70 hours of total flying time!12. And this was after commissioning - completion of training in the regiment, to which every graduate of the flight school who arrived in the line unit was subject. Not only the non-flying weather that prevailed in the winter of 1940/41 in the western regions of the USSR, not only the lack of equipment for clearing snow from airfields, but also the same, traditional for the exaggeratedly bloated Soviet Air Force, the lack of gasoline and training training aircraft. In the Air Force of the Leningrad Military District, for example, at the end of 1.940, there were as many as 35 pilots per UTI-4 (training version of the I-16 fighter) - and no more than ten could fly on it during the day! And the average flight time per pilot in the winter training period of the 1940/41 academic year in the Red Army Air Force was only 16 hours, and, for example, in the Air Force of the Kiev Special Military District - only 6. As a result, it was stated in the order of the People's Commissar of Defense from On May 17, 1941, “the independent release of young flight personnel on combat aircraft was unacceptably delayed and was not completed by the end of the winter period”!14.

And this “young flight crew” had to fight with pilots who, while still at school, received both special flight, and shooting, and tactical training - and hours flew more by a whole order of magnitude! After all, in the process of commissioning - carried out by the Germans in reserve fighter groups (Egedptap? 52garrep) - a graduate of the German flight school added about 200 ... 115 more to his 400 hours of total flight time.

In addition, in fear of accidents, the combat training course in combat units of the Soviet Air Force was simplified before the war so much that even old pilots began to “not so much maintain, but lose their training and skills in piloting, shooting, air combat and in general in combat use”! 16. So, in view of the order of the People's Commissar of Defense No. 0339 of December 13, 1940 and the instructions of the Chief of the Chief

of the Air Force of the Red Army on February 2, 1941, piloting on I-16 aircraft with engines M-62 and M-63 and I-153 was limited by 80%!! fighters!!8, it was now possible only “provided that the roll is not more than 45 degrees, the speed does not exceed 400 kilometers per hour, the dive angle is not more than 35 degrees owls. Aerobatics and dogfights were categorically forbidden.” 9 Meanwhile, in real combat on turns, to turn the car as steeply as possible, it was necessary to apply a roll angle of 80°; close mic 90°. And in order to be able to endure the high g-forces created during such steep turns and when exiting such a steep dive, training was required, training and more than once training! But in the future, aerobatics was also limited when flying on other types of fighters ... It is not surprising that in 1941 Soviet fighter pilots, according to the testimony of Major General of the Luftwaffe K. Webe, “often ignored even the most. primitive rules "lost their heads" after the start of the fight and then reacted so stupidly that it was not difficult to knock them down! It is not surprising that, according to the reports of the pilots of the 54th and 52nd Luftwaffe Fighter Squadrons, operating in the 41st in all three main strategic directions, “groups of Soviet fighters could be identified from a long distance due to the characteristic irregularity of formation”, “in which no reasonable organization was in sight," and after the sudden attacks of the Messerschmitts and the collapse of the defensive circle, "the majority of Soviet pilots were helpless in air combat and the German pilots easily shot them down"!21. It is not surprising that, according to the testimony of the Germans, Soviet fighters in 1941 often acted tactically illiterate when attacking German bombers - they attacked haphazardly, from unfavorable angles, opened fire

whether from excessively large distances, instead of cabins and engines (this is already evidence of a Soviet source) they shot ...

on the crosses on the fuselage of bombers, i.e. on the least vulnerable places of these large all-metal machines!22.

In general, tactical training in the Soviet fighter aircraft at the beginning of the war seemed to be the worst of all. So, in the 17th Fighter Aviation Regiment of the 14th Combined Air Division of the Air Force of the Kiev Special Military District in the spring of 1941, a lot was flown, but they were mainly fond of practicing group flying. The level of tactical literacy of the pilots of the 17th can be judged by the fact that, having received on June 25, 194] the task of covering the Shepetovka station from the air, six of his I-153s began loitering over it ... at low level. How could she detect and intercept German bombers if they approached the target at an altitude of about 3000 m? then militant non-professionalism. For example, back in the winter of 1941/42, according to V.F. Golubev, who then fought in the 13th (later - 4th Guards) Fighter Aviation Regiment of the Air Force of the Baltic Fleet, “many even our experienced pilots considered the Nazis cowards, and their tactics are “thieves’: they avoided frontal attacks, did not get involved in protracted air battles, especially on bends, where the chances of winning were insignificant”!23. And such wild "tactical" views, worthy of romantic schoolchildren, and not professional military men, were professed by sea pilots, better trained than their army colleagues! The prevalence of such views is also evidenced by the fact that the Germans considered a characteristic feature of Soviet fighter pilots in 1941 to rely on “brute force instead of subtle calculation”!24 and the fact that echoes of these views in Russian literature were found decades later and are still found . Thus, in an effort to show the superiority of Soviet pilots over "fascist air pirates", the former commander of the Moscow Air Defense Front D.A. Zhuravlev (or the editor of his memoirs) noted with obvious disdain that "if in the first months of the war German pilots

fight on an equal footing, then in the future they attacked only in case of numerical superiority or using the factor of surprise. As a rule, air defense pilots could expect Messerschmitt attacks only from the direction of the sun, from behind clouds or from a great height! But this is just a competent tactic of air combat! It was with sudden attacks from behind the clouds in the 6th fighter that covered Moscow

only on October 24, 1941, the Yak-1 of Lieutenant B.A. Vasiliev from the 11th Fighter Aviation Regiment of MiG-3 Lieutenant A.I. .F. Poydenko and Chernov, junior lieutenant Glushko and sergeants Alekseev and Bez gubov from the 28th fighter ...! summer school in 1940 and fought in the 17th, 508th, 129th Guards Fighter Aviation Regiments. “Regarding the German pilots,” he writes, “I have a firm opinion that in open air combat -“ who wins ”- they still did not shine with courage. [...| They tried to shoot down our planes, as they say, “from around the corner” [...|”!27. But after all, the task of a fighter pilot is to shoot down enemy aircraft, and not to “shine with courage” for the sake of courage! Back in May - June 1944, in an air battle in the Yass region, almost all the "Aircobras" lost for combat reasons by the division in which Arkhipenko served - the 205th Fighter 5th Air Army of the 2nd Ukrainian Front - were shot down either in battles with superior enemy forces, or as a result of all the same swift surprise attacks from a height ...! and the 760th Fighter Aviation Regiments, Hero of the Soviet Union Vasily Ivanovich Korolev (who is the great-nephew of the author of this book) claimed that he could only survive because even before the war, in his spare time, he continued to study tactics and carefully thought through the possible options for his actions in the air. But from a sudden attack due to the clouds of the Messerschmitt, which shot down his La-5 in January 1944, I can not protect myself.

Undoubtedly, it is precisely the poor training of the majority of Soviet fighter pilots in 1941 that explains the widespread desire among them to evade entry into battle - even if this was not dictated by the nature of the combat mission they were performing. It is simply impossible for a reader brought up on Soviet military-historical and memoir literature to believe this - after all, the leitmotif of any work devoted to the Soviet pilots of the Great Patriotic War was to emphasize their selfless courage and desire to beat the enemy in any situation! Nevertheless, according to the testimonies of German front-line pilots, summarized by V. Schwabe Dissen, in 1941 “the characteristic features of the average Soviet pilot were a tendency to caution and passivity instead of perseverance and steadfastness [...]”!29. Thus, "all the reports of the commanders of the German bomber divisions indicate that in 1941 Soviet fighters did not pose a threat to German bomber formations and often avoided combat with the latter." In particular, J. Jodike, who then commanded a detachment in the 3rd Blitz bomber squadron in the central sector of the front, recalled that “until the autumn of 1941, his subdivision

either did not collide with the Soviet fighters, or they simply did not attack. H. von Reisen, who fought as part of the 30th bomber squadron "Adler" in the Arctic, "several times almost collided with Russian fighters, but they did not even open fire"!30. Exactly the same case is described by the Russian memoirist, whose memoirs were published already in the post-Soviet, uncensored time, O.D. Kazachkovsky, who served at the beginning of the war in the 641st artillery regiment of the RGK. “Our fighters of the outdated I-16 design [...| like an alarmed swarm, they fly up, - he recalls the raid of German bombers on the Kishi new railway station at the end of June 1941 - However, instead of attacking, they simply circle in the air, trying to stay further away from the Germans. [...| Having been bombed, the German planes fly away calmly, without loss. And then everything in the same way...”131 Former Air Force Commander of the Northern (later Leningrad) Front A.A. Novikov in his memoir

Niyakh did not get tired of glorifying the "fantastic fortitude of the spirit of the Soviet pilots" who fought under him in 1941. However, according to the pilots of the 54th Luftwaffe Fighter Squadron operating in the Leningrad direction, the Soviet "fighters often evaded then fights with German fighters! ?2.

In other cases, the red-star "hawks" "did not show the necessary tenacity" in the attack - this was noted, for example, by A. Blasig. heading in 1941 [U (dive) group of the 1st training squadron in the Arctic, Kh.-Kh. Baron von Beust, who then commanded the 3rd group of the 27th bomber squadron of the Boelke squadron in the Northern Black Sea region, and M. von Kossart, who led L188 in the 1st Hindenburg bomber squadron in the Baltic states and near Leningrad (by the way, according to A.A. Novikov’s assurances, “Leningrad pilots did everything to weaken the blows of enemy aircraft” ...)!33.

to her

And after June 22, 1941, the situation with the training of fighter pilots in the USSR became even worse. The shortage of fuel and training fighters I-15bis and I-16, a significant part of which had to be transferred to replenish the front-line units, forced to reduce the number of flights so much that the numbers received by the cadet became simply ridiculous, or rather, frightening. In 1942, for example, the total flight time of a graduate of the Soviet fighter aviation school averaged only about 30 hours (and only reached 80 at best), while a German graduate had 215 hours. At the same time, in the fighter itself, the German managed to fly 40 hours at school, and the Soviet pilot - only 12134. Sergeant V.I. Popkov in the spring

In 1942, he arrived at the Kalinin Front, in the 5th Guards Fighter Aviation Regiment, having only 3 hours to fly in a combat aircraft!35. And near Stalingrad in the autumn of 1942 they sent such pilots who, on a fighter - not the one on which they were supposed to fight - managed to fly in schools for only | 1.5-2 hours! In reserve aviation regiments (where school graduates were trained), these sergeants managed to complete only one or two flights on

Yak-1136: there was an acute shortage of gasoline in the rear, and the front was also in dire need of replenishment and could not wait... kami - each of which by this moment had flown on a fighter for at least (!) 240 hours, i.e. not even one, but two orders of magnitude more! After all, during training in a reserve fighter group, a graduate of the Luftwaffe fighter aviation school in 1942 managed to add at least 200137 to his 40 hours of flying time on B1109. or only one had 10 independent flights on the I-16) in August of the 42nd, a young replenishment arrived in the 20th Guards Fighter Aviation Regiment, which fought in the Arctic (and again, not on the I-16)! “To be honest, they were simply preparing candidates for the dead, according to the principle of TsIPU “takeoff and landing,” emphasizes S. Z. Bukchin, who was released from the Kachinsky School in the fall of 1942. “By the time of graduation, I had a little more than 20 hours of flight time, of which maybe 1 hour (4 flights) on my own!” 139

At the same time, in Soviet aviation schools, as before, they did not teach the combat use of a fighter - neither group aerobatics, nor tactics, nor aerobatics, nor aerial shooting. True, on October 16, 1942, training in aerobatics and aerial acrobatics was again included in the program of fighter aviation schools, and in December 1942, aerial shooting and tactics were also included - but, as happened all the time in the Soviet Union, programs often remained on paper. So, K..G. Zvonarev graduated from the school already in March 1943, but learned in it only “take-off and landing and piloting, but did not know combat use”! 40. True, it was assumed that a graduate would master combat use in a reserve aviation regiment. However, the lack of gasoline and aircraft (which the front was constantly devouring) did not allow him to do it here too! So, I.I. Kozhemyako (who, after graduating from the Chuguev School, had about 30 hours of total flight time, including 4-5 hours on the I-16) stayed in the reserve regiment throughout 1942 - but during all this time he managed to fly on a fighter (Yak-76) only 5 hours! “We rarely flew, because there were serious problems with fuel and lubricants. Still went to the front. Yes and

the planes were thoroughly worn out - they were not so much flying as being repaired”!1. As a result, Kozhemyako failed to complete a single shooting here either! S.3. Bukchin was in the reserve regiment in the first half of 1943 - but due to the lack of aircraft and gasoline, he managed to make only a few flights in a fighter in seven months. A.I. Ryazanov in the training squadron at the Air Force of the Baltic Fleet at the end of the 42nd was allowed to complete only two flights each on the I-15 bis and I-1531 ?; in the reserve regiment, where S.A. Mikoyan was retrained in October-November of the 42nd, they did not teach air combat; training in the training air regiment, which in February 1943 he got from the school and from which N.E. Bespalov went to the front in June ... Of the six fighter pilots released from spare parts in 194] - the first half of 1943, whose memoirs about the training they received were published by A.V. Drabkin, only K.G. .

The Germans, on the other hand, not only mastered the basics of the combat use of a fighter even in flight school, but also received much more complete training in terms of content in spare parts. Some of the latter were located in the front line, so that young pilots completed their studies in conditions as close as possible to combat. Performing familiarization flights to the combat zone under the guidance of front-line instructors, they gradually mastered in the front-line situation. The Soviet pilots in the spare parts were not even introduced to the WAR EXPERIENCE ...

However, the irrational system of replenishment of these units, adopted at that time, prevented young pilots from completing their studies in the front regiment until the summer of 1943. They were replenished only after they were almost completely knocked out, so that after reorganization in the rear, the regiment turned out to consist almost entirely of young pilots. Thus, there was practically no one to teach them, put them into operation. Naturally, the undereducated youth quickly perished, and the regiment again had to be sent to the

the formation of the rear - after which everything was repeated ... In addition, sometimes the same fuel was not enough for training at front-line airfields.

Inferior was in 1941 - the first half of 1943. and combat training in the line fighter air units of the rear districts, from where reinforcements also arrived to the front. The experience of the war, the demands of the front, were not taken into account at all! Night fighter aviation pilots were not trained at all. “It took the Germans at least two years to train a professional in this specialty! The training course included "blind" flights, studied

radar, practicing take-off and landing at night, and much more ”- in the USSR,“ a night-light pilot actually differed from a “diary” only in that he flew out on alarm at night and slept during the day! 44. As a result, back in June 1943, when repelling raids on Gorky, Saratov and Yaroslavl, night light pilots turned out to be completely helpless: half of them did not know how to use the masking properties of the dark side of the horizon, the pilots did not know how to determine the distance to the detected aircraft and generally relied not so much on airborne weapons, how many natars ...

Nua in daylight fighter aviation back in the summer - autumn of 1942, a significant part of the pilots did not at all know how to conduct group air combat, which was the main thing for the Second World War - both on bends and on verticals. To do this, they - with their insignificant piloting experience - did not have enough flying in a group and even in a pair. In other words, the followers were not able to relentlessly follow the leaders in battle, repeating all their maneuvers - and the pairs already broke up at the beginning of the battle. There is no need to talk about the ability of pairs to coordinate their maneuvers in combat with the maneuvers of other pairs (i.e., about the flying of fours, sixes and eights) ... Therefore, “the air battle was conducted in a disorganized manner and ultimately resulted in isolated actions of singles, giving each other" only "occasional support"! In particular, in the 8th Air Army of the South-East and the 16th Air Army of the Stalingrad Front in early September 1942 - in the midst of the battles for Stalingrad! - over half of the fighter pilots had a weak flight in the group and pair! 46.

What about aerial shooting? Not being trained in it, Soviet fighter pilots of the 1942 model not only opened fire from excessively long distances and fired too long bursts (so that the force of the recoil of the weapon managed to bring down the aim), but also, as a rule, they chose the wrong point aiming.

Let us now compare with this level the average level of German fighter pilots in 1942. in the assessment of N.G. Tolodnikov, who is not inclined to overestimate the enemy: “They piloted very well, shot superbly, almost always acted tactically competently and interacted very well with each other in battle. The interaction was especially striking, you will not have time to join him in the tail, as you are already “knocked off” by another pair from under his tail!

Even at the end of 1943, most of the Soviet "fighter pilots" still had poor discretion in the air, flying in pairs and groups. Air combat skills in the flight and squadron were not stable enough. As a rule, after the start of air combat, the wingmen broke away from their leader, with all the ensuing consequences. Shooting training also left much to be desired”!48. Even in July-August

In 1943, during the Battle of Kursk, air battles of Soviet fighters “in most cases proceeded in an unorganized manner”, “a weak flight of crews in pairs and groups was revealed. The leading pairs lost their senior groups in a group air battle, and the trailing pairs lost their leaders [...1>1. The youngsters lacked not only the practice of actions in a group, but also the skills of complex aerobatics, and, for example, in the 7th Guards and 322nd Fighter Aviation Divisions of the 1st Air Army of the Western Front by the beginning of the Oryol operation (July 12, 1943 d.) young animals accounted for up to 50% and 53% of the flight crew, respectively ... 150

It is not surprising, therefore, that in 1942 - the first half of 1943. Soviet fighter pilots still often practiced avoiding combat. In 1942-1943, the Germans noted, they “became more aggressive”, but along with “aggressiveness, self-confidence, perseverance in conducting air combat, frequent self-sacrifice and ignoring danger”, there were also “low courage”

stature, outright cowardice and lack of initiative”!!. So, on the Leningrad front, according to the testimony of the former officer of the 1st bomber squadron von Riesen, German bombers as early as 1943 “performed their tasks almost without punishment, despite the presence of Soviet fighters”!52. Some German pilots, writes W. Schwabedissen, "on the basis of their personal experience claim that" in 1942-1943. “many Russian pilots [-fighters. - A.S.] [...] accepted the battle only under duress, and when German fighters were detected or the slightest threat of being attacked, they fled from the battle area! ”33. As before, they were not distinguished by persistence - although they became incomparably more frequent than in 1941 - attacks on the formation of German bombers (and even in the spring - summer of 1942 - and Junkers La87 dive bombers)!

These German reports are also confirmed by Soviet sources. Here, for example, is a memorandum of the Deputy Supreme Commander-in-Chief G.K. Zhukov, Secretary of the Central Committee of the Communist Party of the Soviet Union (b) G.M. upon the return of its authors from the Stalingrad Front: “Over the past six or seven days, we have observed the action of our fighter aircraft. On the basis of numerous facts, we have come to the conclusion that our fighter aviation is working very poorly. Our fighters, even in cases where there are several times more of them than enemy fighters, do not engage in combat with the latter. In those cases when our fighters perform the task of covering attack aircraft, they also do not engage in combat with enemy fighters, and the latter attack attack aircraft with impunity, shoot them down, while our fighters fly to the side, and often simply go to their airfields.

What we are reporting to you, unfortunately, is not isolated facts.

Our troops observe such shameful behavior of fighters every day. We have personally seen at least ten such facts. Not a single case of good behavior of fighters was observed! ”55.

And in the order of the People's Commissar of Defense No. 0685 of September 9, 1942 No.

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(the draft of which was presented by the authors of the note cited) it was pointed out that similar facts were noted not only on the Stalingrad, but also on the Kalinin, Western, South-Eastern "and other fronts." “Our fighters,” the order stated, “not only do not engage in combat with enemy fighters, but avoid attacking bombers. When performing the task of covering attack aircraft and bombers, our fighters, even with a quantitative superiority over enemy fighters, evade combat, walk on the sidelines and allow our bombers and attack aircraft to be shot down with impunity "...!56

Back in July 1943, during the defensive battle on the Kursk Bulge, the infantry, according to the commander of the 16th Air Army of the Central Front, S.I. and hide in the rear. “All our fighters,” confirmed the commander of the 279th Fighter Aviation Division of the same army, F.N. an hour to be above the target”...!57 According to Soviet documents, this was also the case during the offensive stage of the Battle of Kursk. Thus, in the course of the Oryol operation, the “hawks” of the 1st Air Army of the Western Front, which covered the 5th Tank Corps in mid-July, “in very rare cases, engaged in battle with enemy bombers, generally fought sluggishly, without showing stubbornness. »!38. “Instances when fighters did not engage in combat with the enemy” then forced the commander of the 1st Air Force, M.M. Gromov, “to issue a formidable directive in which fighters, when meeting with an enemy, were ordered to attack an air enemy with maximum activity”! 59. In the early August of the 43rd in the Belgorod-Kharkov operation of the 2nd Air Army of the Voronezh Front, the groups of the 10th Fighter Air Corps - just like in the 16th Air Corps in July - practiced, according to who observed their work from the ground Deputy Commander of the 5th Assault Air Corps, Major Lebedev, "failure to withstand

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patrol area, in essence, the desertion of part of the fighters from the battlefield. During patrols, some fighters do not go beyond the front line, stand in a circle stretched out to their airfield, and leave after 20 minutes, although they must meet enemy bombers behind the front line and prevent bombing targets. There were cases, one of the guidance groups of the same assault air corps added in its report, when “large groups of enemy bombers bombed the battle formations of our infantry, when our fighters loitered here, [which] if they entered the battle, then fired from large distances, aimlessly, inefficiently”! 60. And the pilots of the 5th assault also reported cases when “covering fighters, when enemy fighters appeared, abandoned” the attack aircraft they were covering, “without repulsing the attacks”!61. The same cases were noted then in the 5th Air Army of the Steppe Front, which was fighting nearby; Thus, in two of the three battles conducted by groups of the 292nd assault air division of the 1st assault air corps on August 7, 1943, escort fighters from the 203rd fighter air division of the same corps did not engage in battle with the German fighters attacking the Il-2. .. The lines from the report of the 1st Tank Army of the Voronezh Front on its participation in the Belgorod-Kharkov operation do not require comments: evaded the lights out in most cases"...!62

In the second half of 1943 the situation improved somewhat. The planned total flight time of a graduate of the Soviet fighter aviation school in 1943 was increased to 50 hours, and the flight time on a combat fighter, which the graduate had by the time he arrived at the front, in 1943 reached an average of 18 hours, and in 1944 - 20163. In addition, from the second half of 1943, young Soviet pilots had more opportunities to complete their studies in front-line regiments. After all, since May of the 43rd, replenishment began to be poured into these latter, without waiting for the complete extermination of the flight crew, in small groups. Thanks to this, the regiment

the core of pilots with combat experience was clearly preserved, and the youth did not experience, as before, a lack of mentors; each could now be assigned to an experienced leader. In addition, the already overwhelming numerical superiority of Soviet fighter aviation from the end of 1943 made it possible from time to time to withdraw front-line regiments to the reserve, where young people could be commissioned in calm conditions and without haste. As a result, for example, Guards Junior Lieutenant N.I. Gromov from the 129th Guards Fighter Aviation Regiment of the 205th Fighter Aviation Division of the 5th Air Army of the 2nd Ukrainian Front by the time of the

his first sortie had already 122 hours of total flight time, including 32 hours on a combat fighter ("Aircobra")! 64. Pilots of the 900th Fighter Aviation Regiment of the 240th Fighter Aviation Division of the |-th Air Army of the 3rd Belorussian Front, junior lieutenants A.V. Kozyro, M.I. Kontrovsky, GI. Kuleshov, Yu.A. Likso, M. I.Pchelin, N.N.Sorokin and GB.Chernyshenko, before making their first sortie on June 23, 1944, managed to fly about 100-130 hours, junior lieutenant D.N.Slepokurov - about 180, and junior lieutenant A.I. Chumichev - about 205 (including on the combat Yak-9 - about 20-40, about 50 and about 40 hours, respectively)!165.

However, the effect of all these measures to improve the training of fighter pilots in the second half of 1943 and the first half of 1944 was less than can be assumed on the move. The main links in the pilot training system - flight schools and reserve aviation regiments - until the middle of 1944, continued to produce completely untrained flight personnel ...

Firstly, they still gave absolutely insufficient flying practice. The 50 hours of total school flight time were still much less than the 160 hours that a German fighter pilot flew in his school in 1943!66. And 18 hours of flight time on a combat aircraft by the time of arrival at the front was still an order of magnitude less than at least 140 such hours that a German gained in 1943 in his school (about 40) and reserve group (at least 100) .. .167 In addition, 18 and 20 flight hours are average

number. But, for example, the above-mentioned M.I. Kontrovsky, G.I. Kuleshov, Yu.A. Likso, N.N. Sorokin and GB. arrival at the front and three-month (!) training in the front regiment, during which each of the pilots of the 900th fighter flew "yaks" for at least ($ 1s!) For 15 hours!68. Consequently, the schools and reserve regiments, in which these five aviators were in 1943 and early 1944, managed to give them only 5-10 hours of flying time in a combat aircraft! According to the testimony of the best German ace E. Hartmann, young German pilots who flew on the B{109C for a little less than 20 hours, "barely could" "safely raise the Me-109 [here: Bÿ109C-6. — A.S.] into the air and put him back [...]”169. True, the Yak-9 was generally easier to pilot than the Bÿ109ÿ-6, and especially during takeoff and landing (because of the wider chassis track than the Messerschmitt). Nose 5 - 10 hours for the summer and the "yak" clearly flew no better than the "Messer" with the 15th ... G.V. Krivosheev and his comrades by the time they arrived at the end of August 1943 from 16th Reserve Aviation Regiment to the 6th Guards Fighter Aviation Division of the 8th Army of the Southern Front (also flying "yaks"), even the total flight time was only 15 hours, and L.3. Maslov and other pilots sent in the fall of the 43rd in the 31st extermination

The air regiment of the 295th Fighter Aviation Division of the 17th Air Army of the 3rd Ukrainian Front arrived there with 10-15 hours of flight time (it is not clear, however, whether it was a general flight or on a combat aircraft): in the training regiment, they only sat on the ground: "No gasoline"!170 But the 31st flew La-5s on takeoffs and landings that were more complex than Yaks... Young replenishment, reported in November 1943 the commander of the 9th Guards Fighter Aviation Division 8 -th Air Army of the 4th Ukrainian Front, I.M. Dzusov, comes to the DIVISION "with poor development of all elements of piloting technique, with poor knowledge of the equipment of the Air Cobra aircraft and its aerodynamic data"! "1. And Major B.B. .Glinka from the 100th Guards Fighter Aviation Regiment of the same division (which was already part of the 5th Air Army of the 2nd Ukrainian Front) stated the same thing in June 1944: “Young replenishment is poorly trained

cheno piloting technique, not to mention the accuracy of fire»!72.

Secondly, until the middle of 1944, the training of a fighter pilot in Soviet flying schools and spare parts remained inferior in content. The orders of the end of 1942 on teaching shooting and tactics in schools were not carried out everywhere even a year later! The same junior lieutenant G.B. as part of a four, not even as part of a pair - and in general "had not been trained for combat use"! In the same way, the rest of the approximately 20 young pilots who arrived in January 1944 to replenish the regiments of the 240th Fighter Aviation Division (which was then part of the 3rd Air Army of the 1st Baltic Front) were “trained” - 86 th Guards, 133rd Guards and 900th1!73.

And if the combat use of fighters and practicing LI - then without taking into account the requirements of the war! While the Germans were taught shooting and tactics in schools by experienced front-line pilots, instructors of Soviet schools and spare parts, even at the end of 1943, as a rule, did not have combat experience. “Our main drawback is incorrect training in the reserves (reserve aviation regiments. - Dream editor of the magazine), and we have to correct the shortcomings in the ranks,” Major D.B. - brother and brother-soldier of the above-mentioned B.B. h, and at the same time overloads were created, which the pilots, accustomed to only 320 km / h, could not endure: it required special training. English ace D.E. John-

dream - you cease to distinguish the surrounding [...]. The blood turns into something lead and flows down to the legs. You are off! When the plane comes out of a turn, some kind of gray unreal world floats in front of my eyes...!75 To

overload did not exceed the usual value, untrained pilots increased the turning radius, making the latter not so sharp. As a result, D. B. Glinka complained, “they immediately break away on combat turns [from their leader. — A.S.] [...]”176.

Let us note that the use of materials by us specifically on the 9th Guards and 240th divisions is explained by pure chance: it was they that turned out to be at our disposal (published, let us add, at different times, in completely different publications and with completely different purposes). The selection, therefore, turned out to be completely random - but the picture, nevertheless, these first materials that came across paint exactly the same. So this picture was typical!

As can be seen from D.B. Glinka’s report that pilots not trained in spare parts to fight at high speeds retained this inability and, having got into battle, even in the second half of the war it was not always possible to teach young pilots in front-line regiments. In fact, the shortcomings of schools and spare parts in 1943 - the first half of 1944. were so great that at the front, the young pilot had to actually not finish his education, but to learn again and spend (as the commander of the divisions of the 9th Guards Fighter I.M. Dzusov noted in November 1943) "a lot of time" on piloting, flying in pairs and flying as part of a battle order, practicing exercises in aerial shooting, navigation and radio communications. According to Dzusov, it took only 10-15 days to prepare a young pilot from the replacement for operations as part of a pair (not even a flight-four, not to mention a six or eight echeloned in height!). 77. Young pilots of the 900th Fighter Aviation Regiment in June 1944 "manoeuvres in flight", prudence and orientation "suffered" (as P.I. Gachegov, a veteran of this unit, recalls) even after three months (!) airfields and to conduct a raid on the Yak-9 up to 20-40 hours, and the total - up to 100-200 ... 178 Is it necessary to say that many front-line regiments did not have three calm months to complete their training of young replenishment at all? During a tense period

combat work, for sure, there was not always even 10-15 days ....

And only in the second half of 1944, N.G. Golodnikov, who fought in the 2nd Guards Fighter Aviation Regiment of the Navy Air Force, testifies, “well-trained reinforcements”, “with good combat skills” finally began to come from the reserve air regiments! But in all front-line units? Yu.M. Movshevich - before arriving at the 89th Guards Fighter Aviation Regiment on September 4, 1944 - in the reserve, in addition to practicing piloting techniques, he only "shooted a little" on the cone ... 180

As a result, Soviet fighter pilots in the second half of 1943-1945. they did not act as competently as the Germans in large group battles. Here it was necessary to be able to maneuver in a coordinated manner - and many did not even really master maneuvering as part of a link (as in the 900th fighter regiment by the summer of the 44th), many could not fight even as part of a pair, breaking away from the leader when turning on a large speed (as in the 100th guards fighter aircraft by the summer of the 44th) .. According to German pilots, a group of Soviet fighters in 1944-1945. “quite often” “disintegrated after a short battle and rarely gathered again”! 81. Many did not know how to maintain their place in the battle formation of the group, even out of combat, flying in a straight line at cruising speed! In 1944-1945, W. Schwabedissen noted, “a characteristic feature of Soviet fighters” was still “the so-called “loose” formation, in which the planes were constantly rising and falling relative to each other. This "technique" allowed the German pilots to determine the ownership of aircraft even from a very long distance [and, therefore, let us add, to make a decision appropriate to the situation faster, avoiding in some cases the danger of being subjected to a surprise attack or gaining the opportunity to organize such an attack themselves. — A.S.]”!32. (The observations of the Germans are also confirmed by the Englishman D.E. Johnson, who met with the Soviet "yaks" in the Berlin area in April 1945: "The planes swirled like a swarm of bees, constantly changing shape"!33.) the level of tactical skill of the undereducated majority

of Soviet fighter pilots, and in the last period of the war, the piloting technique was too weak.

Undoubtedly, that is why the Germans in 1944-1945. recorded cases when Soviet fighter pilots showed “passivity and lack of initiative in the attack” and “engaged in battle only when they were outnumbered”!84. German reports relating to this period, points out W. Schwabedissen, "again and again note the caution of Soviet fighter pilots when attacking German bombers"!35. And the famous Assault Aviation of the Luftwaffe, H.W. As is clear from his memoirs, this was the case, for example, in March 1944, when the fighters of the 5th

The stuffy army of the 2nd Ukrainian Front failed to prevent its 3rd group of the 2nd assault squadron "Immelman" from bombing the crossing across the Dniester near Yampol. “[...] We have long known about the insufficiently high morale of Soviet fighters,” Rudel comments. “Only a few selective units were the exception to this rule.” And talking about the battle with the La-5 from the 17th Air Army of the 3rd Ukrainian Front in the Chisinau-Dubossary area in May 1944, he specifically notes: “Ivans are ready to fight, which happens to them very infrequently”! 86. Another Immelmaner, F. Seiffardt, who flew in 1944 on the E \ / 190E attack aircraft, writes about the same: “We also met with Russian fighters, but for the most part they avoided us, so we had problems with them was not "...187

Poor piloting technique - which, as we see, distinguished many Soviet fighter pilots until the end of the war - partially explains to us the difference in the combat scores of German and Soviet pilots. It suffices to return to the phenomenon noted in June 1944 by D.B. Glinka. Unable to stay on the combat turn behind their leader and breaking away from him, Dmitry Borisovich continued, young pilots “lose their bearings and often become the prey of the enemy”!88. In fact, the German fighters, first of all, sought to attack Vat single aircraft that had broken away from their group.

you - after all, no one covered these cars! 58% of Soviet fighter pilots who died or went missing in an air battle in the Yass region on May 30 - June 8, 1944, were shot down precisely as a result of separation from the group ... 189 Note that an inexperienced pilot, breaking away from his own, could more likely to become a victim of an attack, which concentrated all his attention on restoring orientation - and forgot about prudence, about the need to continuously monitor the air situation. Poor piloting technique did not contribute at all to the development of prudence in the air among the pilots: after all, a pilot who is uncertain in his control of the machine involuntarily concentrates all his attention on controlling the aircraft. “Some Russian pilots did not even look around and rarely looked back,” recalled G. Barkhorn, second in official performance as the Luftwaffe, from the P group of the 52nd Fighter Squadron. “I shot down a lot of those who were not even aware of my presence!”90. How this happened can be seen, for example, from the story of F.F. Arkhipenko about how, on one of the spring days of 1942, the six B09 blocked the Stary Oskol airfield, over which the four Yak-1 barred. “One rolls off,” recalled Arkhipenko, who then served in the neighboring 17th Fighter Aviation Regiment of the Air Force of the Southwestern Front, “makes a maneuver, goes into the tail of the last of the yaks, shoots down one, the other, the third plane”! 9!. Not a single Yak-1 pilot noticed, as we see, not only the approach of the enemy, but also attacks

to neighboring planes! 10-15% of the fighter pilots of the 5th Air Army of the 2nd Ukrainian Front, who died or went missing in the air battle over Iasi on May 30-June 8, 1944, fell victims of precisely bad prudence in the air!??. "Suffered", as we have seen, in the same days, the prudence of the young replenishment of the 900th Fighter Aviation Regiment - preparing to participate in the Belarusian strategic operation. And V. Lipfert from the P group of the 52nd fighter squadron of the Luftwaffe, even in January 1945, attacking the "hawks" of the same 5th air army of the 2nd Ukrainian Front, who were patrolling over the bridgehead on the Slovak river Gron, could testify that "in most cases

he didn't notice what was happening until it was time for him to use his parachute! 33.

It is clear that the weak shooting training they received even in 1944 did not contribute to the increase in the combat scores of Soviet fighter pilots. German instructions that Soviet fighters in 1944-1945. often opened fire “even when not a single target was observed in the sight”! 94, may indicate precisely the insufficient shooting skills of the young replenishment - in June 44, noted, as we saw, by B.B. Glinka. V. Lipfert, who fought in the P group of the 52nd and [group of the 53rd Pik As fighter squadron from December 1942 until the end of the war, in his memoirs did not skimp on the high marks of the piloting skills of many Soviet pilots who converged with him in maneuver battles, but he could not give such an assessment of their ability to choose the optimal firing distance and correctly calculate lead: “Practically all Russian pilots that I met in such a situation began to shoot and wasted their ammunition”!95; But V.V. Rybalko, who fought the entire war in the 122nd Fighter Aviation Regiment, not only testifies that “all German pilots shot well”, but does not at all stipulate that this assessment refers only to the first half of the war! The marksmanship skills of the Luftwaffe fighter pilots in the second half of the Great Patriotic War can be seen even more definitely in the assessment of K.G.

In general, one gets the impression that the “average Soviet pilot” at the end of the war became a “worthy adversary” for the Germans not so much due to the improvement in the training of pilots again sent to the front, but due to the fact that in 1944-1945. it became much more than before, the chances of surviving the joys of the pilots who began to fight before the 44th and who, accordingly, had already managed to gain experience by that time. On the one hand, these chances were increased by the enormous numerical superiority of the Soviet fighter aviation achieved by the 44th - in

combined with the habit of the Germans to pounce on

turn on inexperienced pilots. On the other hand, the fact that in 1944 the level of training of the young German reinforcements dropped sharply (and became no better, and perhaps even worse than that of the Soviet one): in order to give him as many flight hours as they gave before, The Germans were running out of gas. In the summer of 1944, for example, the 9th detachment of the Shgruppa of the 52nd fighter squadron of the Luftwaffe came, according to its then commander E. Hartmann, “a lot of young pilots who had less than 60 hours of flight time, and they flew less on the Me-109 20 hours. They had to make sorties, having only basic training ... 197 continue to gain experience and improve your combat skills. Due to this increase in the layer of experienced air fighters, it seems that it increased in 1944-1945. the average level of training of Soviet fighter pilots ... s

The opinion of German experts also deserves attention, according to which the very atmosphere of Soviet life in the 30s and 40s prevented the training of full-fledged fighter pilots in the USSR. with its cult of collectivism and disdain for human individuality. “A person who is accustomed to think and act like everyone else,” noted, for example, W. Schwabedissen, “does not have the flexibility of mind, which is essential for a real air fighter” 198. from a fighter pilot to receive - and in a matter of seconds, atoms and fractions of a second! - independent decisions, many of which are not provided for by any charters and instructions. And indications of "lack of creative thinking", "inertia", "lack of initiative" and "tendency to collective action" as traits inherent in the pilots of the Soviet fighter aviation up to the 45th, are among the German front-line aviation commanders a commonplace...199 Back in 1943, "the ability of Russian pilots to act competently in a group battle is overly dependent

villages from the commander, whose training and courage determined the whole pattern, character and result of the air battle "; the same was noted by the Germans in 1944-1945200.

5. PLANES OF THE SOVIET AND GERMAN FIGHTER AVIATION

Finally, the lower effectiveness of Soviet fighter aviation was determined by the fact that its materiel was, as a rule, less perfect than the German one.

Before going down the drain of this aspect of the problem, let us recall that the Soviet Air Force used almost exclusively single-engine fighters at the front. Only one of the hundreds of fighter regiments fought on twin-engine Pe-Zi Pe-3 bis - the 95th, from September 1941 to March 1942, which was part of the 6th Air Defense Fighter Corps, and then - part of the Air Force of the Northern Fleet. The vast majority of Luftwaffe fighter planes that fought on the Soviet-German front were also single-engine. The twin-engine Messerschmitt BE-10 and Junkers Li88 (in the modification of a night fighter) were used in limited quantities; in addition, Bÿ1 10 performed the functions not so much of fighters as of bombers and attack aircraft. Therefore, below we will talk exclusively about single-motor machines.

Equipped with means of communication

First of all, we point out that until the end of 1942, the absolute majority of Soviet fighter aircraft were in principle not adapted to the air battles of the Second World War, because they did not have radio communications. The absolute majority of group commanders could control their subordinates in the air only by the evolution of their aircraft (swinging their wings, etc.), by gestures, or by the principle “do as I do”. And in this, and in the other, and in the third case, the subordinates had to see the commander’s car well, i.e. stay close

close proximity to him. And this actually excluded the possibility of using the only effective group combat tactics for that time - based on the interaction of aircraft in pairs, pairs, fours, etc. After all, these planes, couples, fours, etc. they had to be at a considerable distance from each other in order to be able to fight at high speeds, which, in turn, allowed them to maintain the initiative in battle. No wonder the directive of the commander of the Red Army Air Force dated July 7, 1943 required “in the fighter units of the radio to count

'the same weapon as a cannon and a heavy bullet!201

Undoubtedly, the lack of radio communications was one of the reasons why Soviet fighters kept for a long time.

whether adherence to close combat formations, where the pilot had to watch not so much the air situation as to not crash into a neighboring car (and, therefore, be in danger of missing an enemy attack), but to maneuver slowly and clumsily ... From the absence of radio communications also prevented the exchange of information about the situation - and, in particular, to warn each other of danger. An episode is indicative, when on July 13, 1941, over the Shongui airfield near Murmansk, Captain G. Shashke from the headquarters of the 76th fighter-bomb squadron (Herz $ schgegoezsV \ Madeg) shot down three I-16s from the 145th Fighter Aviation Regiment at once 1st Mixed Air Division of the Air Force of the 14th Army of the Northern Front? 02. The Soviet aviators who were at the airfield perfectly saw how the twin-engine "Messer" went into the tail of the take-off flight, but to warn Lieutenant V.G. Ishakov and junior lieutenants V.G. Makarov and I.I. Shumeev could not because of the lack of radio stations on their planes... Ultimately, the lack of radio communications was one of the main reasons for the colossal losses of Soviet fighter aircraft during the war years!

The lack of radio communication also made it impossible to direct the fighters in the air to the target, giving them the same tactical advantages as the Germans. The last to be reported from the ground were not only the coordinates of Soviet aircraft

Comrade, but also the weather situation in the area. As a result, E. Hartmann recalled, “we could [...] choose the best height and position for our attacks [i.e. again, to seize the initiative in battle! — 4.S.]”203. And if necessary, the Germans quickly built up their forces, calling reinforcements after reinforcements to the battle area by radio ...

We emphasize once again that in 1941-1942. the vast majority of Soviet fighter pilots found themselves in such an unfavorable tactical position! On the "hawks" of pre-war production - I-16, I-153 and I-15 bis - radio stations began to be installed only in 1940-1941], and even then not on all. Theoretically, out of approximately 8,000 machines of these types204 available in combat fighter air units at the beginning of the war, up to 20% could have radio communications (from 1238 to 1302 I-153 and about 150 I-16 types 24, 28 and 29205). However, in reality, there were fewer radio-equipped "donkeys" and "gulls": the pre-war Soviet radio equipment was so imperfect that in parts it was often dismantled as useless cargo and sent to a warehouse ... Ana I-15 bis radio stations were never installed. Of the fighters built in 1941, most of the LaGG-3 and MiGG-3206 had radio communications, but the Yak-1 was not equipped with radios at that time; they began to receive them only in the winter of 1942, starting with the 52nd series. In the spring and summer of 1942, radio stations were installed first on 10% of the newly produced Yak-1, then on 20%, and finally on 33% (on every third aircraft)? 07; Apparently, it was the same

lo and with the then-built Yak-7. But in the front-line units, the proportion of radio-equipped "hawks" at that time was significantly smaller. Thus, in July 1942, the |-I Air Army of the Western Front had four fighter air divisions (i.e., no less than 12 regiments) - however, only the vehicles of the 18th Guards Fighter Aviation Regiment were equipped with radio stations, and even only about 80%208. At that time, only English and American-made fighters were fully radio-equipped - Hurricanes, Tomahawks and Kittyhawks. And only on August 20, 1942, a decree was issued

decision of the State Defense Committee on equipping all newly produced fighters with radio stations. But that was only part of the problem. All figures given in the previous paragraph refer only to radio receivers, and radio transmitters in 1941-1942. even fewer Soviet fighters were equipped. So, in 1941, transmitters were installed only on every third of those MiG-3s that were equipped with radio receivers, and on every tenth of those with LaGG-3 receivers; of the Yak-1 radio-infected in the spring and summer of 1942, only one in ten was also equipped with transmitters (i.e., first 1%, then 2%, and finally 3.3% of newly produced machines of this type). In September, 20% of Yak-1s leaving the factory shops (as well as 33% of those just launched into the La-5 series) began to be equipped with transmitters, and from October - 50%; only 50% were equipped with transmitters and the Yak-9 at the beginning of 1943209. In the 5th Guards Fighter Aviation Regiment of the 207th Fighter Aviation Division of the 17th Air Army of the Southwestern Front, equipped with the La-5, even in July 1943 radio transmitters were only on command vehicles. And even on the latest La-5FN, received by the 5th Guards from the factory in September 1943, the transmitters had to be installed already in the regiment, by the technical staff ... 210 Only at the end of 1943 did each newly produced fighter begin to receive a receiver and a transmitter - and before that, most Soviet pilots could not inform the commander or each other about the target or danger they had noticed. However, even in the presence of radio stations, Soviet fighters were by no means always able to contact each other! Those radio stations that were installed in 1941-1942, the pilots simply "could not use because of the large interference to radio reception created by the engine ignition system and other aircraft sources." This interference "caused a terrible noise and crackle in the headphones"; in addition, Soviet radio equipment "often got out of tune, did not have sufficient frequency stability, and did not provide proper audibility." “All this gave rise to distrust in radio communications, and some pilots flatly refused to use it in combat”? 1. “In the 41st year,” the then-flying MiG-3 in the 10th destroy

V.I. Klimenko's air regiment, there was, one might say, no radio communication. There was only one crackle in the headphones, no one used the radio"?12. A.E. Shvarev points out that the radio began to work normally only during the participation of his 236th Fighter Aviation Regiment in the Battle of Stalingrad, i.e. in the autumn of 1942 - in the winter of 1943, but, according to the veteran of the 5th Guards Fighter Aviation Regiment G. Baevsky, the quality of Soviet radio stations was lame in the middle of 1943 ("There is a crack in the headphones, hear the bridge is unimportant ..."), According to S.D. Gorelov from the 111th Guards, radio operation became normal only in the autumn of the 43rd, and according to I.I. Kozhemyako from the 107th Guards, it remained unimportant until the end of the war?! It is characteristic that, according to the observations of the Germans, for the first time regiments flying on American Airacobra fighters, which had "stable radio communication with little interference," began to demonstrate a clear interaction in combat in the Soviet Air Force for the first time. "We in the group were talking to each other in the air, as if on a telephone ...", recalled the third official Soviet ace G.A. fighter air division?!5.

German fighters, on the other hand, have been equipped with radio receivers and radio transmitters - moreover, of high quality - since pre-war times. |

Speed, climb and vertical maneuverability

The lower effectiveness of the combat work of Soviet fighter aircraft in comparison with the German one was also due to the superiority of German fighters over Soviet ones in the most important flight data - speed, climb and vertical maneuverability. Without having an advantage in these indicators, it was very difficult to maintain the initiative in air combat (i.e., overtake the enemy and impose a fight on him) and fight in the most effective way - on the verticals, inflicting a "falcon strike" from above and again leaving to the height to break away from the enemy and a new attack.

We stipulate that, in the future, citing the speed characteristics of fighters, we will indicate the data of new, not yet used specimens. During operation, both speed and rate of climb inevitably decreased: scratches, dents, patches on holes, warping of plywood sheathing, loose fit to the surface of the wing of dented landing gear - all this increased the aerodynamic drag of the aircraft; field repairs (with rough welding and painting, using

the use of handicraft parts and substandard materials) increased weight; finally, the motor wore out and lost power ... That is why we will give the speed characteristics of German fighters according to German data - not measurements made during testing of captured aircraft in the Soviet Air Force Research Institute or the Flight Research Institute of the People's Commissariat of Aviation Industry (LII NKAP). After all, the captured specimens were far from new, with worn out engines; some were tested after an emergency landing "on the belly" ...

In addition, the data we provide will refer exclusively to production aircraft, and not to prototypes, by which we still often judge this or that type of aircraft. For serial aircraft, the speed and rate of climb were invariably lower than for prototypes: after all, in the process of introducing into serial production, a lot of changes were made to the design of the machine, which increased its weight (for example, the installation of additional equipment), and often worsened it. aerodynamics (for example, installing an enlarged water radiator). In addition, experimental machines were built by workers of higher qualifications; their surfaces were finished more carefully and therefore “clung to the air” less. However, it was serial copies that fought at the front ...

And, finally, let us clarify that the speed data of production aircraft cited below are the data of their individual copies (for Soviet aircraft - copies that were subjected to control tests at the Air Force Research Institute or, more rarely, at the Flight Research Institute). For other cars of the same type and even the same modification, the speed, for example, could differ by several km / h: they affected

disruptive changes introduced into the design or manufacturing technology from one production series to another, different quality of materials, different qualifications of workers; the different quality of manufacture of motors also affected - the accuracy of the manufacture of parts. the accuracy of assembly and adjustment ... For example, the ASh-82FN engines that were on the La-7 fighters received in September 1944 by the 156th Fighter Aviation Regiment of the 215th Fighter Aviation Division of the 4th Air Army of the 2nd Belorussian front, the spread of power values was up to 50 hp. (with a passport take-off power of 1850 hp), ay La-5FN, on which he flew in the 31st Fighter Aviation Regiment of the 295th Fighter Aviation Division of the 17th Air Army of the 3rd Ukrainian Front L.3. Maslov, this engine, "maybe 1400 [hp] — A.S.] gave”216. Within 5%, a deviation from the standard and speed Bÿ109 was allowed (and the rate of climb - within 8%)217.

Showing the fact that in terms of speed the Soviet fighters

whether they were inferior to the German ones until the middle of 1944 (and many types even later), can be called without exaggeration the greatest merit of post-Soviet aviation historians (and, above all, Yu.A. Google and V.I. Alekseenko). Indeed, in Soviet literature for decades it has been argued that only N.N. Polikarpov's I-16, I-153 and I-15 bis fighters, designed in their general form back in 1933, were slower than German ones, and the "hawks" of the so-called new types, which were designed starting from 1939 and finally ousted Polikarpov's cars at the beginning of 1943, either were not inferior to the "Germans" in speed, or even surpassed them! (In the most vivid and concentrated form, this version was, perhaps, stated by the aircraft designer A.S. Yakovlev in his wonderful memoirs "The Purpose of Life", which served in the 70-80s, according to the apt remark of D.B. Khazanov, "a kind of reader on the history of domestic aviation "? 18.)

With I-16, I-153 and I-15 bis aircraft, which made up the majority of Soviet "hawks" in 1941 and fought back in 1942 - the first half of 1943, the picture, of course

but clear. There was no question of dictating your will to the enemy in battle. If the German fighters of 1941 - "Messerschmitt VY109E-4", E-4 / M, E-7, E-8, E-1, E-2 and E-4 - had a maximum speed of 570-630 km / h, then 52% available on | June 1941 in the combat air units of the Red Army Air Force and the Navy Air Force I-16 (cars of types 18, 24, 28 and 29 of the release of 1939-1941) - only 461-470 km / h; 40.9% (I-16 type 5 itin 10 issue 1936-1939) - 445-448 km / h, ab, 3% (I-16 type 12 itin 17 issue 1937-1939) - 425-431 km / h219. (The Messers and I-16s reached their maximum speeds at different altitudes, but the Soviet vehicles lagged behind by 100–150 km/h throughout the entire range of altitudes.) even the Junkers La88 bombers were able to catch up, whose speed in 1941 reached 467 km / h20. Appeared at the end of the 41st Ll88A-4 could leave the I-16 even with a climb! "When the planes were separated by about 400 m, we gained altitude in the afterburner and hid from the enemy with a sharp maneuver," the former pilot of the P group of the 30th Luftwaffe bomber squadron, P.-V.Sttal, described the meeting of his "Junkers" with a pair of "donkeys" in the Rzhev-Torzhok area on December 28, 1941221... And the I-153 biplanes (nicknamed "seagulls" for their characteristic bend of the upper wing) could not overtake even the fairly slow Heinkel He1 11 bomb carriers. So, at the end of January 1942, the "gulls" of B.N. Biryukov and N.E. Lavitsky from the 270th Fighter Aviation Regiment of the Air Force of the Crimean Front pursued a single He! 1] from Feodosia to Yalta - but they never managed to get closer than 200-300 m to it, i.e. reach the effective fire range of their ShKAS machine guns. After all, the maximum speed of the I-153, which you launched in 1939-1941, but were a development of the design

bathed back in 1933 I-1 [5, was equal to 424-443 km / h, i.e. was practically the same as that of the most common Heinkel modifications in 1941, He!111H-4 and H-6 (425-430 km/h)?22. On another modification of the I-15-I-15 bis, biplanes produced in 1937-1939. with a non-retractable landing gear and a maximum speed of 367-379 km/h?).

As for the new types of Soviet fighters, in 1941 the races were represented by the Yak-1, MiG-Zi LaGG-3 aircraft, which were designed - respectively under the leadership of A.S. Yakovlev, under the leadership of A.I. Mikoyan and M.I. .Gurevich and under the leadership of S.A. Lavochkin, V.P. Gorbunov and M.I. Gudkov - in 1939-1940. and began to leave the factory floors, respectively, in September 1940, December 1940 (the original modification, called the MiG-1) and January 194]. together with the MiG-1) built about 3220 by the end of this year; they were followed by LaGG-3 (respectively 2463 aircraft) and, further, Yak-1 (1396 aircraft)?24.

In domestic literature, all these fighters for a long time preferred to be compared with the German "Messer Schmitt BE 09E" ("Emil", as the Germans called this family of modifications of the "one hundred and ninth"), more precisely - with the Bÿ109E-4 model 1940, maximum speed which was 570 km / h, or with BE109E-3 of the 1939 model, which developed no more than 555 km / h -25 - and draw a confident conclusion about the superiority of Soviet mashgins in maximum speed. However, the main Luftwaffe fighter on the Soviet-German front in 1941 was no longer B1109E, but Bÿ109E ("Friedrich") - with improved aerodynamics, a more powerful engine and, as a result, much faster. As early as June 22, 1941, the combat units of the German fighter squadrons in the East were 68.7% equipped with Friedrichs?26; these were the B#109E-1 and E-2 cars with the Daimler-Benz 2B601M engine, and from August the B109E-4 began to be used, on which an even more powerful PBOBOTE was installed. And among the B109E-3 vehicles that still remained in the Amy Lei combat units, there were no B109E-3 machines at all, and B109E-4 were only a part; the other consisted of BE109E-4/M and E-7 (as well as, according to some sources, E-8)227. Being equipped with the same OV6b01M or even (Bÿ109E-8) OBBOTE engines as the early Friedrichs, these late Emilys also developed speeds greater than 570 (and even more so 555) km / h. And, as can be seen from Table 7, the vast majority of German fighters of 1941 exceeded the Yak-1 and LaGG-3 in maximum speed, and a significant part (Bÿ109E-4) - and

many MiG-3s. And over the "yaks" and "laggs", produced in the second half of the 41st, they had superiority here

in general, all German fighters - even the obsolete BEO9E-4.

In general, the advantage of the Germans in speed in 1941 became more tangible every month. While the enemy was becoming more and more impetuous Bÿ09E-4, the speed of the serial "Migs", "Luggs" and "Yaks" was continuously decreasing. The fact is that with the outbreak of war, Soviet aircraft factories lost a significant part of their skilled workers, and the quality of aircraft construction deteriorated. Rough painting, poor fitting of hoods, hatches, wing fairings, distortion of the shape of the wing surface - all this increased the aerodynamic drag and, accordingly, reduced the speed of the aircraft (on the MiG-3, for example, only poor finish of painted surfaces "ate" 10 km / h? 28). An increase in weight, caused, for example, by rough welding of the fuselage frame or motor mount, also led to the same result. The weight of the vehicles was also affected by the continuous changes made to their design - the installation of additional equipment, the strengthening of weapons (on the LaGG-3), etc.

Table 7

MAXIMUM SPEED OF GERMAN AND SOVIET NEW TYPE FIGHTERS IN 1941223

* > <"

The large scatter of values is due to the involvement of data over several instances.

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In December 1941

Issued in September - December 1941 in the amount of several dozen copies of the Yak-7 fighters, the maximum speed turned out to be the same as that of the Yak-1 of the December issue - 560 km / h?35.

However, Table 7 does not reflect the entire complexity of the situation in which the new types of Soviet fighters found themselves in the 41st. The value of the maximum speed does not give a complete picture of the speed data of the aircraft: it is achieved only at a certain altitude - and at all other altitudes, the aircraft speed does not exceed other, lower values. Almost all air battles on the Soviet-German front took place at altitudes up to 4000-5000 m: after all, it was here that front-line bombers and attack aircraft operated, i.e. objects that the fighters had to either attack or defend. And in the altitude range up to 5000 m - as can be seen from Table 8 - any ($ 1s!) German fighter of 1941 developed a greater speed than any then Soviet "jast-

child” of a new type (in extreme cases, equal). |

Table 8
ALTITUDE AND SPEED CHARACTERISTICS OF GERMAN AND SOVIET NEW TYPE FIGHTERS IN 1941231

Speed at height, km/h:

GlagG-Z (June | 48 | 508 | MiG-3
(May) | 4% | 55

488-50
5

g “>
The scatter of values is caused by the involvement of data from several instances. |

** h
Upper Limit value - calculated data.

Let us once again draw the reader's attention to the fact that the data on the LaGG-3 and MiG-3 given in Table 8 refer to pre-war vehicles, and those built in the second half of 194] lagged behind the Messerschmitts even more! So, MiG-3 then developed only 462-475 km / h instead of 495 near the ground, and LaGG-3 - only 457-474 km / h instead of 498 ... 232

157

Table 9

RATE OF CLIMBING OF GERMAN AND SOVIET FIGHTERS NEW TYPES IN 1941233

Aircraft Rate of climb Rate of climb at altitude, m/s: ÿÿ

in [100 | 128
ie.

Note. The + sign means no data.

As can be seen from Table 9, in 1941 all German fighters outperformed all new Soviet fighters in terms of rate of climb, and quite significantly. They had the best

and diving properties - even the BEO9E accelerated in a dive to higher speeds than the Yak-1234 and LaGG-3, and the VNO9E outperformed the MiG-3 here. Thus, a greater acceleration inertia was added to the better rate of climb, and when, after coming out of the dive, the Messerschmitts rushed upwards, they gained more height for this hill than Soviet fighters. And that means a new attack from above—i.e. the most efficient - the Germans could do it faster than the Soviet pilots. In general, in the vertical plane, the German fighters moved more confidently than the Soviet ones: at the end of the “hill”, the “Messer” could continue to climb even at such a low speed at which the Yak-1 and LaGG-3 fell down. In short, the vertical maneuverability of the German fighters in 1941 was better than that of the Soviet new types. This means that it was easier for them to fight in the most effective way - inflicting “falcon strikes” from above and again leaving for a height.

“At present,” summed up on December 24, 1941, the head of the Air Force Research Institute Fedorov, “we do not have a fighter with flight performance data that is better or at least equal to the Me-109F”? 35.

Why were even the new Soviet fighters in 1941 inferior to the German ones in terms of speed, rate of climb and vertical maneuverability? The main reason was the insufficient power-to-weight ratio of Soviet vehicles compared to Bÿ109: their weight was greater than that of the Messerschmitts, and the engine power was less.

Table 10

POWER EQUIPMENT OF GERMAN AND SOVIET FIGHTERS NEW TYPES IN 1941236

Sa t	Maximum (take-off) engine power, h.p.	aircraft engine type flight weight, kg
aGG-3	M-105PiA	10	3150 - 3346* O V VI 3355
k-1	m-105piGA	10	0832-2951" OBOTAA	1175	2505
VNOEE-1 and E-2	08601	1200	2780 -- 2795 VNOZE-4
OVBO1E	1350	2900	

Note. Sign : means no data.

* >

The scatter of values is caused by the involvement of data from several

semplars.

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As for the engines, the Soviet industry could not offer more powerful aircraft designers at that time, and the lower weight of the Messerschmitts was due primarily to their all-metal design. In the design of Soviet cars, due to the shortage of aluminum in the USSR, wood was widely used. So, the Yak-1[made of wood wing, keel, stabilizer and part of the fuselage skin, the MiG-3 - the tail of the fuselage with a keel and wing consoles, and the design of the LaGG-3 in general was all-wood: this machine had duralumin only engine hoods, landing flaps, rudder and aileron frames, and two ribs in the power set of the center section (the motor mount and carriages of small arms and cannon weapons were naturally made of steel). And a wooden structure - due to the greater specific weight of wood - is heavier than an equally strong one made of aluminum alloys VOB ... In addition, to achieve approximately the same as

and with the Messerschmitts, the flight range, the Soviet fighters had to carry more fuel with them. After all, the efficiency of the M-105 and AM-35 engines was 25-30% less than that of the German Daimler-Benz?37.

In addition to the lower power-to-weight ratio than Bÿ109, the flight data of the new Soviet fighters was also affected by the fact that their design was not as well thought out, not as technically complete as that of the Messerschmitt. So, unlike the latter, the Yak-[and LaGG-3 (as well as part of the MiG-3) were not equipped with front wings, which increased the wing lift at high angles of attack. That is why they could not climb up the “hill” for as long as the “Messers” - with a decrease in speed, the wing stopped holding the car earlier than that of the “German” ... Unlike the German ones, Soviet fighters did not had internal sealing - so that air flows freely "walked" along the fuselage, creating a braking effect and, accordingly, reducing the speed of the aircraft ...

But that is not all. The speed and rate of climb indicated in Tables 7-9 were demonstrated by brand new MiGs, Laggs and Yaks only during control tests at the Air Force Research Institute. And at the front (even without being worn out yet!) They, as a rule, could not show this either. In other words, in real air battles, even the unworn MiGG-3, LaGG-3 and Yak-1 were inferior to the "Messers" in speed, soon lift and vertical maneuverability even more than one might think after reading tables 7-9!

The reason for this was primarily the lack of conditions for the normal operation of Soviet aircraft - which did not allow them to realize all their capabilities in every sortie, in every battle.

The normal operation of the MiG-3, LaGG-3 and Yak-1 was hindered, firstly, by their numerous design and manufacturing defects. In contrast to the Bÿ109, which was brought to a constructive point of view and worked out in serial production, the new Soviet cars were still very “raw”. So, the candles of the AM-35A engine, which was on the MiGG-3, required replacement after only three hours of operation, and, therefore, in approximately every third sortie they started

surrender, not allowing the “instant” to develop the theoretically achievable speed and rate of climb. A frequent occurrence on the MiG-3 was also suction at high speeds from the wing surface of the landing flaps (flaps). By increasing the aerodynamic resistance of the aircraft, the landing flaps deviated in flight "ate up" speeds up to 25-30 km/h?38; this defect was also found in LaGG-3. And the Yak-1 fighter (as well as the Yak-7 model of 1941) was prevented from developing the theoretically achievable speed and rate of climb by the lack of oil cooling system. At high speeds, the heat transfer of the M-105P engine to oil was more than 1000 calories per minute, while the OP-252 oil cooler provided only 800-850 cal/min?3? and the oil overheated. In order to prevent the engine from catching fire, the pilots had to keep low speeds in battle, i.e. lack of speed and rate of climb... Further, the scourge of all new Soviet fighters was the poor quality of the cockpit lights. At high speed, it was almost impossible to open the sliding canopy cover - so the pilot could not be sure that he would be able to leave the wrecked car (the Soviet fighters did not have an emergency reset mechanism for the canopy cover, similar to the one on the B1109). In addition, the Soviet plexiglass, from which the lanterns were made, often quickly turned yellow and lost transparency. In addition, the windshield was often flooded with oil, which was suddenly thrown out of the engine through the toe of the gearbox, and the lantern fogged up due to the lack of cabin ventilation. Therefore, at the front, the cover of the lantern was either not closed or removed altogether - and most of the MiGs, Laggs, and Yaks in 1941 flew with open cockpits. And this sharply increased the aerodynamic resistance and, accordingly, sharply reduced the speed! So, the Yak-1 (11th Fighter Aviation Regiment of the 6th Air Defense Fighter Aviation Corps) in the summer - autumn of 1941 was short of 20-40 km / h for this reason (near the ground, for example, developing instead of 470-490 km / h total 450); the speed of the MiG-3 with the canopy cover completely removed decreased by 36 km/h240. Secondly, the insufficient qualifications of Soviet pilots and technicians, who were not always able to read and write but to operate aircraft, had an effect. So, technicians serving

The MiG-3s were often unable to cope with the extremely careful adjustment required by the AM 35A engine. And “insufficiently accurate adjustment led to a deterioration in the characteristics of the motor”? 4! and, therefore, to a shortage of speed and rate of climb. The M-105P and PA, which were on the LaGG-3 and Yak-1, were not always carefully regulated. And in order to prevent oil from getting on the windshield of the lantern, in parts equipped with “yaks” and “laggs”, instead of replacing the gaskets in the propeller hub, all kinds of shields, visors, etc. were mounted in front of the lantern. (on the MiGs, similar "oil deflectors" began to be installed already at the factory). These "cling to the air", protruding parts took away a few more km / h of speed ... In the winter of 1941/42, the "hawks" were covered with easily washable white paint, but the surfaces roughly painted with a brush were not sanded, and they remained rough, "eating" more 10-15 km/h242. In addition, the aviators then insisted on operating the new fighters on a ski chassis: it seemed too difficult for them to organize, following the example of the Germans, the clearing of airfields from snow. But the skis were heavier than the wheels, and in the retracted position protruded from the niches in the wing, which were designed for the wheels. And, for example, the Yak-1, manufactured at the end of 1941, with a ski chassis instead of 560 km / h, developed only 550, atoms and only 533 km / h during tests! 243 , naturally, extinguished the speed even more.

Thirdly, the operation of the MiG-3, LaGG-3 and Yak-1 was hampered by the absence of automatic devices on them, which made it easier for the pilot to control the propeller group, the engine and the propeller. Without them, in the heat of battle, it was very difficult to monitor, for example, the temperature of the water in the engine cooling system. Therefore, front-line fighter pilots, as a rule, constantly kept the damper of the water radiator in such a position that the cross-sectional area of the air flow passing through the radiator was maximum. This provided better heat transfer and guaranteed against engine overheating - however, the damper turned out to be maximally extended into the air flow, and aero

the dynamic resistance created by the water radiator also became maximum. As tests in the 434th Fighter Aviation Regiment of the 16th Air Army of the Stalingrad Front showed in September 1942, when the water radiator damper is opened to failure - and not to a position in which the water temperature remains close to the boiling point - the speed of the Yak- 1 decreased by 6%. And the full opening of the MiG-3 oil cooler damper "ate" 20 km / h.244

It was even more difficult to manage a propeller group, fighting in a vertical plane. Here, the pilot of the Soviet "hawk" had to monitor not only the temperature of the water in the engine cooling system, but also the composition of the fuel-air mixture entering the engine cylinders. Indeed, with a change in altitude, the density of the air also changed, and if, while gaining altitude, the pilot forgot to work with the altitude corrector, the air in the mixture ceased to be enough and the fuel did not have time to completely burn out in the cylinders. And this, of course, led to a drop in engine power and, therefore, to a decrease in the rate of climb. In addition, the Soviet pilot fighting on the verticals had to change the pitch of the propeller in a timely manner, otherwise this latter would cease to “remove” all the power developed by that from the engine, and the rate of climb again decreased. And on the LaGG-3 and Yak-1 (i.e., on machines with the M-105 engine), when descending or climbing, it was also necessary to switch the supercharger speeds in time, which provided a constant pressure of air entering the carburetor. If the pilot forgot to switch these speeds at a certain altitude in combat, the engine again began to lose power - "and the fighter could not get up to 25 km / h speed? 45.

On the Messerschmitts, however, there could not have been such a shortfall in speed and rate of climb in battle - the optimal mode of operation of the propeller group for the pilot here was provided by automation. The pilot moved only the Gaza strip - increasing or decreasing engine speed - and the corresponding position of the dampers of the water radiators, propeller pitch, mixture composition and boost pressure were selected automatically?46.

True, all five Soviet front-line pilots interviewed on this subject, whose memoirs were published by A.V. Drabkin, assure that engine and propeller control did not distract from piloting, since “all this was worked out to automatism”? But firstly, this is said by experienced pilots who managed to survive in air battles, but for newcomers who died in the very first sorties, such automatism might not yet exist. Secondly, of the five veterans, only N.E. Bespalov directly pointed out that the control of the propeller group did not interfere with the pilot in battle (and not in general when piloting) - and even then it could be affected by the fact that a significant part of his sorties he performed (in 1944-1945) on the Yak-3, which had automatic control of the damper of the water radiator. And from the words of the one who fought in 1941-1942. in the 11th and 434th fighter regiments on the Yak-! and Yak-76 S.A. Mikoyan it follows that

'management of the engine and propeller in battle still interfered! “[...] In air combat,” Mikoyan points out, “the pilots hold everything to the stop and no engine control [as in the text. - 4.S.] are not involved. Handwheel [controller

screw pitch. - A.S.], all the more, they were not used in battles”? 48. The fact that the control of the propeller group in battle still interfered is also evidenced by the report of the commander of the Red Army Air Force A.A. Novikov to I.V. front-line soldiers - suggested bringing the aforementioned "steering wheel" closer to the gas sector on fighters - so that it was possible to control engine speed and propeller pitch with one hand movement?49.

The gap in speed and rate of climb between MiGs, Laggs, and Yaks, on the one hand, and ÿÿ109, on the other, increased at the front also because new types of Soviet fighters, other things being equal, wore out faster, than all-metal "Messer Schmitt". Plywood (or birch veneer) skin of the wing and plumage in hot weather began to warp, the fabric coating of the skin began to lag behind the plywood, the putty applied to the fabric began to swell, and the aerodynamic drag of the aircraft increased, “eating up” the speed and rate of climb ... Not in vain in September 1942

pilots of the 16th Air Army of the Stalingrad Front proposed to make the tail and leading edge of the Yak-1 wing from metal - so that these parts of the airframe, which are most important from the point of view of aerodynamics, would not lose shape so quickly ...

Since October 1941, the British fighters Hawker "Hurricane" MK.PA and American "Curtiss R-40S" (which in the USSR, following the example of the British, were called "Tomahawks") began to be used in the Soviet Air Force. But according to the most important flight data, these machines were inferior to the Messers even more than the MiGs, Laggs and Yaks. "Hurricane" with a mediocre power supply (take-off power of the Rolls-Royce "Merlin" XX engine - 1280 hp; flight weight of the MK.PA modification machine tested at the Air Force Research Institute - lighter than MK.PV - 3170 kg? 59) was distinguished by mediocre aerodynamics: it had an excessively large wing area. And the power supply of the Tomahawk was worse than that of any Soviet or German fighter of 1941: in terms of engine power (Allison U-1710-33 developed only 1055 hp on takeoff), it was inferior to all of them, and in terms of flight weight (3390 kg on tests at the Air Force Research Institute) - exceeded? 5 !. In addition, all the Hurricanes that arrived in the USSR and part of the Tomahawks have already served in the British Air Force and, accordingly, wear out ...

As a result, the “Soviet” Tomahawks in terms of maximum speed (545 km / h at an altitude of 4860 m for the MK.PV modification machine tested at the Air Force Research Institute) were only at the level of the slowest of the new Soviet fighters - LaGG-3 of the last third production 1941 - hello heights

about 3500 m (i.e., in most of the zone of the main air battles!) was inferior to this “lagg” (near the ground, for example, the Tomahawk MK. PV developed only 445 km / h252 at the Air Force Research Institute). Yes, and this speed "Tomahawks" gained very slowly. And the speed data of the “Soviet” Hurricanes (the maximum speed of the MK.PA modification aircraft flown at the Air Force Research Institute is 522 km / h at an altitude of 5500 m) could generally be considered good only for 1938! At all heights, they were hopelessly inferior to both the “lags” and the ones taken long ago in

Germany from weapons ÿÿ109ÿ-3233. “A disgusting plane,” S.F. Dolgushin, who fought on this machine in the 180th Fighter Aviation Regiment on the Southwestern Front, spoke of the Hurricane in the summer of 1942. — No speed, heavy. [...] You can't overtake anything on this airplane. Yu-88 leaves freely, not to mention the "Messer". On the Harrikeyne, I shot down [according to Soviet data. — 4.S.] 4 or 5 aircraft, but it was possible to shoot down only if you catch them”?54.

The rate of climb of the Tomahawks and Harrikanes was also poor; for example, the machines tested at the Air Force Research Institute gained a height of 5000 m, respectively, in 7.0 and 7.2 minutes - lagging behind here not only from Vÿ109E-4 (4.8 minutes), butiotYak 1 (5.3-6.8 minutes), as well as from MiG-3 and LaGG-3 pre-war production (respectively 6.5 and 6.8 minutes)? 55. A truly tragic feeling of complete hopelessness, the absolute impossibility of seizing the initiative in battle, comes through in the story of the veteran of the 767th Fighter Aviation Regiment of the 122nd Air Defense Fighter Division T.D. fighter squadron in the area of the airfield Arktika near Murmansk on March 10, 1943: “They beat us by choice And with a “candle” they went up for a second attack. The engine was out of breath, there was not enough strength to get up from the black cauldron of battle ... 256

In the next year, 1942, the Germans raised the bar even higher, to which the red-star "hawks" had to reach. By spring, the Emily (VP 09E) had completely disappeared from the combat fighter air units of the Eastern Front, and the Friedrichs (B#109E) from June 1942 began to be quickly replaced by the Gustavs (B{1090). And in the fall, the main Luftwaffe fighter on the Soviet-German front was already the B1109S-2, on which, instead of the OVLE, there was an even more powerful OV605A engine and which therefore had an even higher power-to-weight ratio than the Bÿ109E-4 (“two” was supplemented by the Bÿ109C (-4 , differing from it only in the type of radio station).In the northern and central sectors of the front, as part of the [group of the 51st fighter squadron, from September 1942, several dozen Focke-Wulf fighters E \! 190A- 2 and A-3 (mostly

the last of these two modifications). Information about the speed data of these machines in the Russian-language literature is contradictory; only the test results of the captured E\!190A-3 by the British in the summer of 1942, published by A.I. Rusetsky, do not raise doubts. Since Fokker No. 13013 showed these results when the engine was running in nominal mode, it can be assumed that the significantly higher values of the speed E\/190A-3, which are given by Yu.A. afterburner. Therefore, we placed in table 11 the data of both Rusetsky and Google (recall that for the nominal mode it contains the data of an instance that has already been in operation; new machines should have developed several km / h more here). As can be seen from the table, in the afterburner, the E \ / 190A-3 was not inferior in speed to the then Messerschmitts, or even surpassed them. As for the USSR, in 1942, after the number of I-16, I-153 and I-15 bis in front-line air units decreased by almost an order of magnitude, as well as (due to the termination of their 41st issue in December) MiG -3, the Yak-1 and LaGG-3 became the most numerous Soviet fighters (the first 3476 were built in 1942, the authors - 2771257). Both of them were modernized: from June 1942, instead of the M-105PA, they began to install a more powerful M-105IF engine, from August - to produce with a retractable tail wheel - aYak-1 (from October 1942, produced in the Yak- 16, whose name did not take root in the Air Force) in November-December, it also underwent a more significant improvement in aerodynamics. There were also two new types of fighters - Yak-7 and La-5. The first was a development of the Yak-[and differed from it mainly in the all-metal tail, reinforced chassis and second cabin (because it appeared as a result of alteration of the Yak-1 training version - Yak-7UTI), and the Yak-76 modification was also reinforced armament (since August 1942, the Yak-76 was also produced with the M-105PF). In small quantities, Yak-7s were built back in September - December 1941, and in 1942 they were - in modifications Yak-7A (January - April) and Yak-76 (since April) - 2431258 were produced. And La-5 represented is the same LaGG-3 (it is no coincidence that until September 8, 1942 they

was called LaGG-5), but with a more powerful air-cooled engine M-82 and reinforced armament. You started to launch this aircraft designed under the direction of S.A. La Vochkin in June 1942 - and by the end of the year 1129 aircraft were built? 39.

Despite all this, the Soviet fighters in 1942 could not even match the speed, rate of climb, and vertical maneuverability of the German aircraft, let alone surpass them.

Table 11

ALTITUDE AND SPEED CHARACTERISTICS OF GERMAN AND SOVIET
FIGHTERS OF NEW TYPES IN 194225

Airplane
ground speed, Speed at height, km/h: km/h |
|

LaGG-3 566
(SM-105PF; 506 3750 June
1942 Yak-7A
560 Yak-76
570-578 (SM-105PF;
tires | 3 in 569-573 3550-3650 - June 1942) * | m ie
sM-105PF; June -

December
527 -546 | 548-568 | 554-571 | 570-592 | 558-579 o 1942) * o 509-519 / a And mode / 532/570 |
546/576
| 560/566 599-564
535-536 forc. mode)*

* The scatter of values is caused by using data from multiple instances.

As it is clear from Table 11, only La-5, which appeared in August, could even theoretically catch up with the main German fighter of 1942 - ÿÿ109 - and then only at afterburner and at altitudes up to about 2000 m. But in fact it was beyond the power and "shop"! True, according to the report on the military tests of these aircraft, which took place in August 1942 in the 49th Fighter Aviation Regiment of the 234th Fighter Aviation Division of the 1st Air Army of the Western Front, the horizontal speed of the first ten serial La-5s (in the report they named LaG-5) turned out to be equal to the speed of B{109261. But the 49th regiment was opposed by the old Bÿ109E-4 (from the 51st fighter squadron), and the La-5 was already lagging behind the most common ones by the time it appeared on the front. “It is impossible to impose an air battle on the LaGG-5 on the enemy fighters because of the lower horizontal speed,” wrote in his report an experienced pilot, Lieutenant V.A. "near Stalingrad? 6?. And this is not surprising: due to various design and manufacturing defects, this new Soviet fighter - just like all the previous ones - could not be operated normally, and the speed values \u200b\u200bgiven in Table 11] it, except for tests, practically

never reached. First of all, the lack of knowledge of his M-82 engine had an effect. When working in a forced mode (and only on it one could hope to catch up with the Messer!) This engine quickly lost spark plugs, and the La-5 lagged behind the VP 09. The same thing happened with the M-82 and at altitudes above 2000 m263 - so the real superiority of the "Messers" over the La-5 there was even greater than it appears from Table 11. In addition, at high speeds, the M-82 quickly overheated, and the pilot had to slow down, i.e. reduce speed... Further, as on other Soviet fighters of the first half of the war, the La-5 quickly became cloudy in the cockpit canopy plexiglass, and at speeds of more than 350 km/h the canopy sliding cover jammed. To this was added poor thermal insulation of the engine, which is why the hellish heat was standing in the cockpit - up to 40 in winter, up to 55-60 ° C in summer! - and poor sealing of the engine compartment (because of which the cabin

often tightened exhaust gases). That is why the Lavochkin pilots in [942] almost always flew with open canopies, losing speed due to the increase in aerodynamic drag up to 45 km/h ($1s!)? 6“...

The aerodynamic drag of the "Lavochkin" was also increased by the suction at high speeds from the wing surface of the landing flaps, which is still characteristic of the LaGG-3. And many La-5s also had to fly with the tail wheel released: the mechanism for cleaning it failed. This "ate up" a few more km/h (up to 8265 on "yaks") speed. About the same number was lost due to the fact that the La-5 pilots flew with the engine cowl doors too open. They could only guarantee themselves against overheating and jamming of the latter: after all, there was no time in battle to monitor the thermal regime of the motor in order to change the position of the valves in time, and there was no automatic control of the propeller group on the La-5, like its predecessor, was absent ...

It does not correspond to reality and still defends my V.I. Kondratyev's optimistic assertion of K.Yu. (i.e. up to about 4500 m) in terms of speed "were practically equivalent to Me-109E"266. This conclusion is based on the results of comparative tests of Soviet and German fighters conducted in June 1942 at the Air Force Research Institute - far from the new BE109E-2 No. 9209 competed with the "yaks" (K.Yu. it was BE109E-1)267. Not to mention the fact that the Messerschmitt No. 9209 glider was badly worn out, and the engine was generally defective, let us recall that by June 1942 the main Luftwaffe fighter on the Soviet-German front was no longer the BE09E-2, much more high-speed B1109E-4. And the backlog of the same Yak-1 from B109E-4 - as is clear from the data published in the fundamental monograph by S. Kuznetsov - was minimized

only in October 1942 (when Bÿ1090-2 became the main German fighter in the East!), only at altitudes up to about 2000 m - and, most importantly, only during control tests at the Air Force Research Institute! $ 26 In real air

in a stifling battle, even after that it remained much more significant than one might think after reading Table 11. After all, like the La-5, like all new types of Soviet fighters, the Yak-1 with the M-105PF could not be operated normally ! The water and oil coolers installed on it still did not provide proper engine cooling in flight at maximum speed, and the designers and manufacturers failed to cope with this problem. In the front-line units, the Yak-1 was sometimes equipped with an oil cooler from the Yak-7; production of Yakovlev-1 with such a radiator was also required by the decision of the State Defense Committee of August 11, 1942, “but for some reason this was not suitable for the series” ...269 And, in order to avoid engine overheating, when flying at small heights - i.e. just where the gap between Yakovlev and Bÿ109E-4 was theoretically minimal! - Yak-1 pilots with M-105PF were forbidden to give the engine full speed, i.e. elk was forbidden to develop maximum speed ...

The excessive opening of the dampers of water and oil coolers by the pilots of Yaks and Laggs due to the lack of automatic control of them in combat (“eating up” 15-45 km / h of speed), and flights with an open canopy from - for the poor transparency of the plexiglass, for splashing the windshield with oil, overfilling the poorly ventilated cabin with powder gases during firing and the lack of an emergency reset mechanism (this took another 15-20 km / h, and meanwhile in those who fought in August - September 1942 under Stalingrad, the 8th and 16th air armies flew like this "in all cases"! 270), and too rapid distortion of the surface of the wing and plumage due to warping of their plywood skin ... reducing the flight data of the Soviet "hawks" factor as the poor quality of field repairs. It was "produced extremely carelessly, without observing the rules for maintaining the aerodynamics of the aircraft": bent propellers "poorly corrected and not balanced", replaced landing flaps, landing gear flaps, wing fairings, hatches "poorly adjusted, dents on the cowlings did not straighten out, painting did not resume" - and as a result, the lack of speed increased by 10-25 km / h ... In total, due to the lack of conditions

for normal operation, "yaks" in 1942 did not get up to 40-50 km / h in battle, the theoretically achievable speed!?71

And here is the appearance of a faster one than Friedrich Hee, BT 09S-2! F.F. Prokopenko, who fought at the beginning of 1943 in the 32nd Guards Fighter Aviation Regiment of the 210th Fighter Aviation Division of the 3rd Air Army of the Kalinin Front, directly indicates that the speed of the Yak-1 was inferior to the "Messers" even at this time ?? ?2.

Moreover, there can be no question of the “equivalence” of the speed characteristics of the “Messers” of 1942 and the Yak-7b with the M-105PF - and even that (as K.Yu. Kos Minkov claims in another work) the lag of this “ yak" from BIO9E and C with the receipt of a new engine "became much smaller and no longer played a big role in air combat"273. After all, the flight data of the Yak-76, as a rule, were even worse than the Yak-1 (because with the same engine and practically the same airframe, the “seven” was heavier). In addition, due to design and manufacturing defects in real M air combat, the speed of the Yak-7b also turned out to be significantly lower than in tests at the Air Force Research Institute! True, the surfaces of these machines - thanks to the metal keel and stabilizer - did not deform during operation as quickly as the Yak-1; The oil cooler installed on the Yak-76 was also more appropriate for the thermal regime of the M-105 PF engine. But still, the water and oil cooling systems could not cope with their task even on the “seven” - and give the M-105 PF engine full speed, i.e. it was also practically impossible to develop maximum speed on it. And, for example, the Yak-76 aircraft of the 18th Guards and 146th Fighter Aviation Regiments of the 234th Fighter Aviation Division of the 1st Air Army of the Western Front "for combat with an advantage with modern B{109E" fighters in the summer of 1942 were not enough, according to the report of the commander of the 234th S.D. Yaroslavtsev, as many as 30-50 km / h speed. (As it is clear from the context in which D.B. Khazanov cites this testimony, it was about flying with a closed canopy. But the pilots of both regiments - due to the splashing of the windshield with oil ejected from the engine - flew with an open one, and this took another 15—

20 km/h)?274. It is not known, however, what engines were then on the "yaks" of the 234th division - M-105PA or M-105PF. But even if they were the first, the Yak-76 with the M-105PF should also lag behind the B1109E (and even more so from the B#109C-2) - after all, with an increase in speed of 30-50 km / h, these engines (as can be seen from table 11) could not provide.

Even more significant in the 42nd was the superiority of German fighters in rate of climb (see Table 12) and the vertical maneuverability associated with it. The appearance of ÿ#09ÿ-2 gave the greatest effect exactly here.

Table 12

RATE OF CLIMBING OF GERMAN AND SOVIET FIGHTERS
NEW TYPES IN 1942 27°

Set time

Recruitment
time

LaGG-3
- Yak-TA | (January 6.42 VNO9E-4

Yak-7b
Yak-1

Only 20 Yak-1 aircraft of the 96th series, produced in September 1942 and fought in the 512th Fighter Aviation Regiment of the 220th Fighter Aviation Division of the 16th Air Army of the Stalingrad Front, caught up in rate of climb with B1109E-4 - lightened by reduced firepower, they could climb 5,000 meters in 4.7 minutes?76. However, their opponents near Stalingrad were no longer Bÿ109E-4, but Bÿ1090-2 ...

As for the conventional Yak-1 with the M-195 PF, as well as the Yak-76b with the same engine, in real air combat their rate of climb was even lower than it appears from Table 12, compiled according to the results of control tests at the Air Force Research Institute. The constantly overheated engine forced the pilots of the front-line "yaks" to slow down and

"

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struggle of heights! In addition, the pilots still could not have time to manually change the propeller pitch, mixture composition and boost pressure ... As a result, on September 26, 1942, the commander of the 1st Air Army of the Western Front S.A. Khudyakov, in battles with "yaks", "Messerschmitts" "get out of battle with impunity, often without even using a maneuver, gaining height in a straight line"?77. The pilots of the 1st Air Force could not catch up with them here on the then "yaks" (although, for example, they tried repeatedly in the 248th Fighter Aviation Regiment). The La-5, which had a greater power-to-weight ratio than the Yaks, did not succeed either. In terms of rate of climb (even in afterburner) it was inferior to Bÿ109E-4, and with the advent of B#109ÿ-2, the superiority of the Messerschmitts in climb rate “became overwhelming. Over the entire range of altitudes, the Gustav went up 2-3 meters per second faster than the Lavochkin in afterburner. And when the La-5 pilot was forced to turn off the boost. in order not to “burn out” the engine, the superiority of the “Messer Schmitt” reached 7-8 meters per second, which made it almost impossible for our pilots to fight on

verticals”?78. ‹[...] Having an advantage in rate of climb, - noted the above-mentioned V.A. Chilikin from the 27th Fighter Aviation Regiment, - "Messerschmitts" achieve superiority in height and, therefore, occupy the best position for attack. Due to this circumstance, several enemy vehicles can tie down a numerically large group of LaGG-5 aircraft.

The same as in 1941, there were other - in addition to superiority in rate of climb - circumstances that provided the German fighters with better vertical maneuverability. True, the “Yakovlevs” and “shops” could quickly move from a dive into a set. high YOU - “break”, as they said then, the “trajectory” - without making such a big “drawdown” here as B{109. If a Soviet pilot began to get out of the dive and make a “hill”, he, earlier than the German, found himself at a certain height above. And if at the same height the Messer also passed from the "hill" to the level flight, it inevitably turned its tail to the Soviet "hawk" already in wait for it. That is how he managed to win in the spring of 1942 one of his

their victories over Bÿ109E A.I. Pokryshkin, who then flew the Yak-1 in the 16th Guards Fighter Aviation Regiment on the Southern Front. “At the top of the hill,” Alexander Ivanovich recalled, “he came to his senses from overload and, at the limit of vertical speed, shifted the plane to level flight. Directly in front of the nose of my "yak", fifty meters away, the leader of the enemy pair came out of the hill. I make a small turn, take aim and fire a burst at the engine and cockpit”?80.

However, the advantage of the "Yakovlevs" and "Lavochkins" in the speed of "breaking the trajectory" could clearly only be used from time to time. After all, the German fighter did not necessarily finish the "hill" at the same height as the Soviet one who started the duel with him. He could continue to go up - while the Soviet car had already reached the "limit of vertical speed", i.e. its minimum value, upon reaching which the acceleration inertia can no longer compensate for the decrease in the lift force of the wing of an aircraft climbing vertically upwards. For Yaks, this limit still came earlier than for Messers: after all (unlike La-5 and LaGG-3 produced after August 1942), neither Yak-1 nor Yak-7 and IV42 received slats. Even if ÿÿ109ÿ-2 (whose wing load was greater than that of ÿ#109ÿ) on the "hill" could climb up until the speed dropped to 140-150 km / h, then the Yak-1 fell down already at 150- 160 km / h, and the heavier Yak-7 - even earlier? 8 !. The Yak-76, in addition, performed a U-turn after climbing, worse than the "Messers". This fighter, reported in the summer of 1942 from the 1st Air Army, "has excessive stability and does not fall on the wing, but slowly" pours "on the tail, representing an excellent target for the enemy" ... 282 .

How serious the backlog of new types of Soviet fighters from German ones in speed, rate of climb and vertical maneuverability was in 1942, is evidenced by the desire of some pilots, which manifested itself in the fall of this year, to transfer from new aircraft to ... I-16iI-153 And, abandoning all attempts to conduct an offensive

fight on verticals, limit yourself to defensive, on turns. “They reasoned something like this: you still can’t catch up with the“ Messer ”, and in a defensive battle, the chances of surviving are much more thanks to the excellent [horizontal. - /.S.] the maneuverability of Polikarpov's aircraft? 83. In September 1942, “under pressure” from the commander of one of his fighter air divisions, Yu.A. Nemtsevich, the commander of the 1st Air Army of the Western Front, S.A. Khudyakov, even petitioned to I.V. other about the resumption of the release of the I-16 and I-153!284

The reasons for the fact that even in 1942 "qualitative superiority in fighter aircraft continued to be on the side of the Germans"?85 remained (as is partly already evident from the above) the same.

Firstly, this is still the same lower power-to-weight ratio of Soviet fighters compared to German ones - due to the lack of sufficiently powerful and at the same time reliable engines and the construction of heavier vehicles of mixed and all-wood construction compared to all-metal ones (see Table 13).

Table 13

POWER EQUIPMENT OF GERMAN AND SOVIET FIGHTERS
NEW TYPES IN 1942286

Maximum
Aircraft Engine Type | (takeoff) power | Flight weight, kg engine, hp

Glatt-3 (June) | m1 | 10 | PS [YakTAJanvar)
| MA | 10° | 2% [Yak7b (May-June | MMF
| 10° | 90 [Yak-1 (June - December" | m10F_ | -
120 | 20-24 "5 | m

| 1700 3280-3360

VNOZE-4 OVb01E 1350 2900
VN09b-2 0V605A-1 1475 Approx. 3020 |

VMIVO1 0-2 3977

* >
The scatter of values is caused by drawing on data from multiple instances.

Learn >
With the exception of 20 cars of the 96th series, which weighed about 2780 kg.

176

Secondly, this is still the same great degree of technical completeness, thoughtful design of German cars. Even on the newest La-5, they did not carry out internal sealing of the fuselage. But it will not be an exaggeration to say that it was precisely its absence that did not allow this aircraft, at least in tests at the Air Force Research Institute, to catch up in flight data with the less power-armed E \! 190A-3! As was later shown by blowing out the “bench on” the wind tunnel, internal sealing would provide a speed increase of as much as 24 km/h?87.

Thirdly, these are all the same design and manufacturing defects and shortcomings that did not allow the machines to operate normally.

In 1942, fighter jets arrived in the USSR from England and the USA, even less equipped with power than the Soviet ones. Thus, the British continued deliveries of MK.P Hurricanes, the “capabilities” of which in the battle with Bÿ109ÿ-2 had already been shown above. Instead of Tomahawks (R-40C), they began to arrive from the USA and from January 1942 began to be used at the front of the “Tyhawk Kit” (as R-40E was called in England and the USSR) - a new modification of the Curtiss R-40 aircraft, which differed both in a slightly different airframe geometry and in a new engine (Allison U-1710-39). This engine could operate in forced mode for 5 minutes, but its take-off power was only 1150 hp, i.e. was even smaller than the M-105PF, which was, for example, on the Yak-1. Meanwhile, the flight weight of the Kittyhawks (for a specimen tested at the Air Force Research Institute, it was 3840 kg) was almost a whole ton higher than that of the Yakovlev-1 and was even more than that of the La-5288. Therefore, at altitudes up to 4500 m - those. in almost the entire zone of the main air battles on the Soviet-German front - in horizontal speed, the Kittyhawks, even in afterburner, were inferior not only to German, but also to Soviet (new types) fighters of 1942. A copy tested at the Air Force Research Institute developed here

only from 477 (land) to 575 (at an altitude of 4750 m) km / h? 89. The vertical maneuverability of a heavy and low-power machine was also not up to par. “Our“ kitties ” [...] in many ways mustache

stupid "Messers", - noted, for example, B.V. Veselovsky, who fought at the end of 1942 on Kittyhawks in the 46th Guards Fighter Aviation Regiment of the 5th Guards Fighter Aviation Division of the 6th Air Army of the North-Western Front . - They had less speed and much more weight, which made it difficult to fight on the verticals. We tried to fight on turns [...]|”290.

Since May 1942, the Soviet Air Force also began to use one of the first modifications of the American Bell R-39 fighter - the Airacobra [(so, in the British way, it was named because the first R-39s arrived in the USSR from England). In terms of power-to-weight ratio (the take-off power of the Allison U-1710-E4 engine is 1150 hp with a flight weight of about 3500 kg), it was approximately at the level of the LaGG-3 and, up to an altitude of approximately 3000 m, in horizontal speed was inferior to the Soviet "hawks" of new types, and above - approximately corresponded to them? 9!.

True, everything that has been said above about the Tomahawks, Kitty Hawks and Air Cobras refers to the normal operating modes of their engines, and when the latter were running “for wear”, the flight data of the R-39 and R-40 became significantly higher. When in the 2nd Guards Mixed (later Fighter) Aviation Regiment of the Air Force of the Northern Fleet, Tom Gauks and Kittyhawks were made lighter by removing some of the machine guns, and the engines began to operate at high speeds, the P-40, according to the veteran of this unit N. G. Tolodnikova, gained “quite comparable” with B1109 speed and vertical maneuverability (certainly yielding here only to BE109C-2). “Aircobras”, on which the regiment began flying in November 1942, when operating the engine in non-standard modes, turned out to be not inferior “neither in speed, nor in acceleration dynamics, nor in vertical maneuverability” even to B1109C. True, the Allison engine with such operation was only enough for 35, at most 50 hours of operation, but here, N.G. Allison "works out 120 hours." “If,” he continues, speaking of the Airacobra, “we would fly in those modes that the Americans indicated in the instructions — they would beat us right away, in the “native” modes the fighter was “nick

coy." And in “our” modes, they fought normally even with a “Messer”, even with a “Fokker”, but it happened, 3-4 such air battles, and that’s all - “change the engine”? 32. And in the 19th Guards Fighter-

nom air regiment of the 258th mixed air division of the Air Force of the 14th Army of the Karelian Front, wing machine guns were removed from American vehicles - and the “cobra”, recalls the former pilot of this unit I.D. it was impossible to compare with us” (however, BE1090-2 — which, Ivan Dmitrievich admits, “began to press us again” — appeared in the Arctic only in the spring of 1943)?233.

However, so far we have no information that the same was done in other units armed with R-39 and R-40. The commander of the 153rd Fighter Aviation Regiment flying in July-September 1942 [on the Voronezh Front] S.I. Mironov rated the tactical flight data of the American aircraft as “good”? to what extent this assessment was determined by flight data, and to what extent - by such advantages of the "Aero Cobra" as excellent radio communications, excellent visibility and good armament ... Yes, and N.G. Golodnikov's assessments relate only to maneuvering combat (through the prism of which Nikolai Gerasimovich considers the flight data of all fighters in general, arguing, therefore, in particular, that the I-16 was not inferior in speed to the Bÿ109E??5). In maneuverable combat, where the need to turn around sharply does not allow reaching maximum speed, the difference in this last one by a dozen or two km / h did not matter. But if the Germans did not want to engage in such a battle (and we saw that this happened most often), then it was hardly possible to make them do it on Tomahawks, Kittyhawks and Aircobras [it was hardly possible - to catch up with German fighters in a straight line mine hardly even allowed "Allison", working "on from the NOSE" ...

In 1943 the Germans also made some progress in the performance of their fighters. So, in July of this Year, aircraft appeared on the Soviet-German front

B#109C-6 - quickly replacing the former B1109C-2 and C-4. A significant part of the "sixes" was equipped with a 2V605AM engine, equipped with a 10-minute power increase system by injecting a water-methanol mixture. This system (M\U-50) ensured a substantial increase in speed by 25-30 km/h296 at medium and low altitudes (i.e., in the entire area of the main air battles on the Soviet-German front) in comparison with the previous modifications of "Gustav". In addition, in 1943, in the fleet of the German fighter aviation of the Eastern Front, the share of E \! 190 aircraft increased sharply, which, in afterburner, developed a significantly higher speed than BE109 at altitudes up to 1000-1500 m - i.e. where the superiority of German fighters over Soviet ones was previously minimal or non-existent. In January 1943, E\\190A-4 appeared on the Soviet-German front (quickly replacing the former E\190A-3), in the spring -

E\!190A-5, in July - E\!190A-6; In 1943, the Fokker Mi (as the Soviet pilots called the Focke-Wulf fighters) was equipped with 40% of the fighter groups that fought in the East (5 !/; out of 14 1/;), and in the fall - 45% (5 ! /, from 12 1/;)297.

Here it should be noted that in the Russian-language historical aviation literature, the most varied values of the speed of the E\!190 aircraft in general and E\!190A-4 and A-5 in particular are given. To find out the truth, one should turn to the German data - however, in full (in the form of a graph of altitude-speed characteristics) they have been published in Russian-language editions only for E \ / 190A-52. For E190A-4, only the ground speed (560 km/h) and maximum speed (676 km/h at 6000 m) are known from German data; the published graphs of the altitude and speed characteristics are based on the values obtained during the tests of two captured vehicles (No. 2310 and 2362) at the Air Force Research Institute and the LII NKAP. But both trophies - as can be seen from a comparison of these values with the German data known to us and with the results of E\/ 190A-4 tests in England - showed a significantly (10-25 km/h) lower speed than the new specimens of E\! 190A-4 and even than the one who has already visited

operation of the "English" "Fokker" 300. This is not surprising: aircraft No. 2310 made an emergency landing “on its belly” before the tests (because of which, in particular, the engine boost controller apparently stopped working normally); after a forced landing, the Soviet pilots also got Fokker No. 2362301. Note that the La-5FN, tested by the Germans after landing “on its belly”, at an altitude of 1000 m, developed a speed of as much as 60 km / h less than the new serial copies ... 302 It has not yet been clarified whether the M\U-50 system was installed on the E \! 190. According to the data of A.N. on parts of the machines), however, A.I. Rusetsky points out that “installing it would require serious changes in the layout [of the aircraft. - A.S.], but the author was unable to find information about this "...303 Leaving the question of the exact values of the E\V! should have differed by more than a few km/h from the corresponding E190A-5 data (see Table 14). Although the weight of the "five" due to the lengthening of the forward fuselage was somewhat larger, and the engine on it was the same as on the "four" (VMU \ U! $ 01) -2), on the ground the speed of both modifications was, according to German data, the same (see above and Table 14). At an altitude of about 6000 m, the "English" E \! 190A-4 in the nominal mode developed 634 km / h394, i.e. again, as much as, according to German data, the E \! 190A-5 should have developed there ... Approximately the same as the A-5 modification,

there should have been speed data for the E\!190A-6, which differed from the "five" only in the replacement of two MCEE guns with the MC151/20 (which increased the flight weight by 30-35 kg305).

In 1943, the speed data of the Soviet "hawks" also progressed (see Tables 11 and 14). Thus, the La-5, which became the most widespread Soviet fighter this year (3997 of these machines306 were built for the 43rd), has been produced since December 1942 with the upgraded M-82F engine (this modification is sometimes called the La-5F). Takeoff

the power of the new engine was the same as that of the previous M-82, but the mode, which was forced for the M-82, became nominal for the M-82F. As a result, it became easier for Lavochkin to catch up with B#109 where he could catch up with them, at least theoretically, i.e. at low altitudes. The speed required for this, at least theoretically, could now be maintained indefinitely, and not for only 10 minutes, as before. The absolute values of the speed also became somewhat higher than that of the La-5 with the M-82 ... Thanks to the improvement in aerodynamics, it was possible to slightly increase the speed of the Yak-1 and Yak-76 - in terms of prevalence in 1943, they shared the second and third places among Soviet fighters (Yak-1 for the 43rd was built 2720, and Yak-76 - 3296307). For many copies of the Yak-1 (on which the internal sealing of the fuze was finally carried out), the maximum speed on tests at the Air Force Research Institute exceeded the 600-kilometer mark ... 308 1 - after which the average maximum speed of the Laggs in 1943 became even higher than that of the Yak-76 (however, the production of the LaGT-3 began to be curtailed and only 1065 vehicles were built for the 43rd 309). In the second half of 1943, the Soviet Air Force began to actively use two new types of fighters: the Yak-9 and La eFN. The first of them - which was a development of the Yak-76 and differed from the last in metal wing spars, a different armament, and in some modifications and an increased fuel supply - was produced in small quantities back in October - December 1942. For the 43rd " Yakovlev-9 "(both the Yak-9 itself and the Yak-9D and Yak-9T produced since March 1943) 2493319 were built - however, their widespread use began only in the autumn of this year (by the beginning of July in four air armies , preparing to take part in the Battle of Kursk - 2nd, 15th, 16th and 17th - "Yakovlev-9" accounted for only 2.3% of all fighters and 3.6% of "yaks" 3 !!). And the speed of the Yakovlev-9, produced in 1943, turned out to be only slightly greater than that of the then Yak-76, and no greater than that of the Yak-1. The fact is that the weight gain obtained by replacing wooden spars with metal ones (as well as removing one of the two machine guns) was used

designers not to improve flight data, but to increase the fuel supply (and on the Yak-9T and to strengthen the cannon armament).

In addition to Table 14, we note that the Yak-9D often flew with incomplete refueling of its four gas tanks; in this case, according to flight data, they approached the actual Yak-9, which had only two tanks3!?. We also point out that for all the Yakovlev-9s we cite data published by A.T.)?13. In the works of V.B. Shavrov and S.A. Yakovlev indicate higher speeds for the Yak-9, Yak-9D and Yak-9T (respectively 605, 600-607 and 605 km/h at an altitude of 3000-4100 m314). But these figures clearly do not reflect the true state of affairs. S.A. Yakovlev, apparently, cites data not from serial, experimental or reference specimens - otherwise it is impossible to explain why, according to his data, the Yak-9T, with a flight weight of 3060 kg, developed 605 km / h at an altitude of 3900 m, and , according to A.T. Stepanets, this aircraft, even with a lower (3025 kg) weight, “squeezed out” at the same (more precisely, at 3930-meter) altitude only 597 km / h ... 315 Well, the information about the “yaks” contained in the work of V.B. Shavrov, in general, they are too often distinguished by frank improbability. Suffice it to say that the maximum speed of the serial Yak-1 of the 1940 model is declared there to be as much as 600 km / h, while the mass-produced Yak- | release in 1943 (and even 1941!) - 650 km / h; the complete fantasy of these figures is clearly visible, for example, from the fundamental work of S. Kuznetsov on Yakovlev-1316. In addition, the heights at which, according to V.B. Shavrov, the maximum speed of the Yakovlev-9 was achieved, do not correlate with the corresponding data of A.T. Stepants, K.Yu. Kosminkov and S.A. Yakovlev.

But the La-5FN - another modification of the La-5, produced since the spring and used at the front since July 1943 - became the first Soviet fighter that, in terms of horizontal speed achieved during tests, not only caught up with, but also surpassed modern him the Germans in almost the entire area of \u200b\u200bthe main air battles! This was the result of replacing the engine that was on the La-5

M-82F to the much more powerful M-82FN (with direct fuel injection into the cylinders); for the high power-to-weight ratio, the pilots "rudely affectionately" called the La-5FN a "stallion" ... 317

However, only 1,050,318 La-5FN aircraft were built in 1943, i.e. a little more than 7% of all fighters produced this year? 1?, and they did not make the weather on the scale of the entire Soviet-German front (and they appeared in any significant quantities only in the fall).

And all the other Soviet “hawks” of 1943 were still inferior to the German ones in speed!

Table 14 HIGH-
SPEED CHARACTERISTICS OF GERMAN AND SOVIET FIGHTERS IN 1943
320 Maximum |

naya speed

ÿl Speed at altitude, km/h: IYa At altitude, m
[1000m | 2000m
| 3000m | 4000m | 5000m|

R-390-2
| | | | .581-| 557/85 en | |5
about

agg-3^___| 58 | 54 | 56 | 583 | 50 | 57 | 5943550 [Yak-76 | 51 | 552 | 559
| 52 | 587 | 574 | 5883850 d [535 _ REN

= .—-

"tt ay 9-5 t ,|
830-542/ Do578/ | Do598/ 610-620 kim | 40583 |`do602
| d0616 approx. 6250 81096-2** | 528-529 | 553-559
| 574-581 | 591-592 [603-607] 611 | 6667000 811096-6 (without / using - /540 . [580 | 585/. 610/631 M \ M /
-50 | 58/BNV|
559576|58600 60926 and

*

The average figures for 1943 are given.

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** The scatter of values is caused by using data from several instances.

*** The speed values given after the preposition “to” correspond to the La-5FN manufactured in early 1944 (we do not have the corresponding data on the vehicles manufactured in 1943). The scatter of values is caused by pulling data across multiple instances.

'
Note. Sign means no data.

As can be seen from Table 14, with the exception of La-5FN, most of the Soviet Messerschmitt fighters in 1943 could even theoretically catch up only near the ground (moreover, B11090-6, which included MU / U / -50 - only La-5 and , Maybe

be part of the LaGG-3) - or only the LaGG-3 of the 1943 model of the year (66th and subsequent series) retained some advantage over the ÿÿ109ÿ-2 up to an altitude of about 1500 m, and La-5 - up to about 2500 m. And the chances of overtaking Of all the Soviet fighters of 1943, with the exception of the La-5FN, only the La-5 had a Focke-Wulf (and even then minimal), and only at altitudes from 2000 to 3000 m.

And these chances were, we repeat, purely theoretical. In a real air battle, even La-5FN did not have superiority over the "Germans" in speed in 1943! After all, as before, numerous design and manufacturing defects and shortcomings did not allow Soviet fighters to develop the same speed in combat as in tests at the Air Force Research Institute. La-5FN, for example, like La-5, let down the unreliability of the engine, due to the poor quality of the candles. “Horizontal,” Senior Lieutenant N.N. Shulzhenko from the 2nd Guards Fighter Aviation Regiment, - La-5FN slowly, but catches up with the FV-190, but then they give up candles, and the FV 190 slowly leaves [... | "321. And Guards Major V.A. Lutsky from the 32nd Guards Fighter directly indicated that at an altitude of 2000-3000 m (i.e., where the new "Lavochkin" theoretically should have had an advantage of 30-40 km / h) horizontal the speed of the La-5FN is only "approximately equal" to the speed of E\!190322 (which means we will add the speeds of B#109C-2, C-4 and C-6). In addition to the vagaries of the engine, the unreliability of the tail wheel retraction mechanism could also have an effect here - again, characteristic of the La-5. There are photographs of La-5FN flying from you

launched tail wheels??3 - and this, as we saw, "ate" about 10 km / h of speed ... As before, it was necessary to involuntarily increase the aerodynamic drag of the aircraft by opening the cowling flaps to failure: it was impossible to allow the engine to overheat, and there was no time to give the flaps an optimal position with each change in the engine speed in combat. Meanwhile, on the E190 (which, like the Lavochkins, had an air-cooled engine), the propeller group was controlled by an even more advanced automatic device than on the B109 - the central engine control station. This post selected all the necessary parameters depending on the position of the gas sector - which was the only thing the pilot had to work with ...

In the same way, other Soviet fighters of 1943 could not develop their theoretically achievable speed in battle - one of them, who at least somewhere could surpass the “German” in this indicator, lost this chance, and the rest turned out to be behind in speed even stronger than it appears from Table 14. So, La-5 was let down not only by candles, but also by the capricious carburetor of the M-82F engine

this unit was missing). On the Yak | and the 43rd failed to install radiators that would ensure proper heat dissipation - and this fighter still could not fly at maximum speed for a long time due to overheating of the 324 engine. The NaYak-76 (and hence the Yak-9) coped with this problem, but in the summer and autumn of 1943, both the Yak-7b and the Yakovlev-9 (as well as the Yak-1 and La-5) became mass victims of natural defects. Due to a violation of the manufacturing technology and poor assembly quality, after temperature changes, the plywood wing skin began to warp on them, the linen skin covering it lagged behind the plywood one, and the paint and varnish coating of the linen one began to crack. This deformation of the surfaces of the machines, of course, worsened their aerodynamics and, accordingly, reduced the speed ... The habit of pilots that persisted in 1943 to fly with an open cockpit canopy also led to the same result. So, in particular, did the LaGG-3 pilots in May 1943

near Leningrad; so back in July 1943 they flew La-5s in the 5th Guards Fighter Aviation Regiment of the 207th Fighter Aviation Division of the 17th Air Army of the Southwestern Front; judging by the statement of I.N. Kozhedub that on July 6, 1943, the smell of burning was felt in the cockpit of his La-5, exuded by the battles boiling below on the southern face of the Kursk Bulge, then they fought with open lanterns in the 240th Fighter Aviation Regiment of the 302nd Fighter Air Division of the 2nd Air Army of the Voronezh Front. The La-5 pilots, it seems, were generally distinguished by a special predilection for flying with an open cockpit - and after all, for most of the 43rd, in fact, only these aircraft had any chances to catch up with the Messer or Fokker at least somewhere. From the indoor lantern, which "ate" up to 45 km / h (!) Speeds, it did not cleanly select these chances for the La-5 ... But what were the pilots to do if they failed to ensure proper thermal insulation of the Lavochkin cabin in the 43rd and with the lantern closed, it was still incredibly hot in it - so that the soles of the tarpaulin boots stuck to the pedals?! And in the same division as the 5th Guards, the 867th (since August - 107th Guards) Fighter Aviation Regiment, the pilots did not close the lights of their Yak-7b in flight due to the lack of an emergency resetting mechanism for the lantern. This mechanism was installed on Soviet fighters only at the end of 1943 (but not all of them: the newest Yak-9U, for example, did not yet have it in March 1944)325.

Thus, even in 1943 it was not possible to eliminate the general lag behind the German fighters in horizontal speed, and the testimonies of front-line pilots published in recent years confirm this again and again. So, according to A.S. Morozov, the front-line soldiers who arrived in the spring of the 43rd in the 6th reserve air regiment, where he then served, “did not hide the fact that“ Messers ”significantly [that's right! - A.S.] outperform our Yaks in speed”326. "Messer has more speed than Yak-1 [...]", -

also notes F.F. Prokopenko, who fought at the beginning of the 43rd on “yaks” in the 32nd Guards Fighter Aviation Regiment of the 210th Fighter Aviation Division of the 3rd Air Army of the Kalinin Front??7; peremptory and veteran of the 107th

Guards Fighter Aviation Regiment I.I. Kozhemyako: “The maximum speed of the Yak-1 | was smaller than that of the "Messer", by 10-15 kilometers. In a straight line, at one height, we could not catch up with the Messerschmitt ”(true, Ivan Ivanovich fought on the Yak-1 already in 1944-1945, but the speed of the Messerschmitts until the end of 1944 remained the same as in 43 -m). About the Yak-76, on which the 107th Guards (until August - the 867th Fighter Aviation Regiment) fought in 1943 and which in this regiment developed no more than 570 km / h in level flight - and there is nothing to say: “If we were at one height, then the Yak-76 could not catch up with the Messer "328

The same was stated by the Soviet front-line soldiers in relation to the "Focke-Wulfs". “FV-190,” A.D. Yakimenko from the 150th Guards Fighter Aviation Regiment pointed out during the war, “compared to the Yak-1, it has an advantage in speed”329. According to G.V. Zimin, who at the beginning of the 43rd 485th Fighter Aviation Regiment of the 6th Air Army of the North-Western Front, the E \ 190 had an “advantage in speed” over the Yak-76 (however, Zimin emphasizes that it was "very insignificant"339, but let's not forget that his memoirs were still going through Soviet censorship). During the transfer, having flown in July 1943 to the Soviet airfield Pesochensky (Kaluga region) E \! 190 to Moscow, recalls the former pilot of the 566th attack air regiment L.S. Dubrovsky, “he went far from our accompanying fighters, but they didn’t he will not be chased. Then, somewhere in the afterburner, they caught up with him. Reviews of front-line soldiers about the lack of superiority in speed over E \! 190, even in La-5FN, we have already cited ...

As for the rate of climb (see Table 15), its exact values at various altitudes have not been published in Russian-language literature for all Soviet and German 1943 fighters. Therefore, for B#1090-6 and E\!190A-4 and A-5, the table shows the calculated data. Calculating them for VP 090-6, we relied on the known value of the rate of climb of this aircraft near the ground, the graph of the change with altitude of the rate of climb of the B09C-2332 fighter - and the assumption that the rate of climb of the S-6 modification

at all altitudes it differs from the rate of climb equipped with the same engine of the C-2 modification by the same value as that of the earth. As for E \! 190A-4 and almost indistinguishable

190A-5 from him, then when calculating the values of their rate of climb in the nominal mode of operation of the engine, the graphs of changes in the rate of climb of trophy (defective) specimens of these aircraft and the data of A.N. Medved were used, according to which, new (in in any case, not defective) a copy of the “four” near the ground gained in one second not 13.5 (like a trophy), but 14.5 meters in height333. And when calculating the rate of climb in the afterburner - a graph of the change in the rate of climb tested in this mode of the trophy E\! from which it is clear that the rate of climb of E \! 190A-5 in afterburner was 17.5 m / s334. In both cases, it was again assumed that at all altitudes the rate of climb of the new specimens E\!190A-4 and A-5 differed from the rate of climb of defective specimens and from the rate of climb of E\V!190E-8 by the same value as near the ground. .

We also stipulate that the rate of climb of the LaGG-3, Yak-76, Yak-9D and Yak-9T of the release of 1943 should have been approximately the same as that of the Yak-9T of the release of the beginning of 1944 (see table. 15) - having the same engine and approximately the same weight. And the rate of climb of the Yak-1 produced in 1943 is approximately the same as that of the iuYak-9 (see Table 15).

Table 15
CLIMBING RATE OF GERMAN AND SOVIET FIGHTERS IN 1943335

Rate of climb - Rate of climb at altitude, m/s:

capacity

rzeim,me yy
Yak-9T

early 1944)

Yak-9 (1942-1943) | 168 | 174 | 166 | 13 | 155 | 30°

La-5
(nominal mode / 13.8 / 17.6 | 14.4 / 18.0 | 15.0 / 17.3 me

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Rate of climb - Rate of climb at altitude, m/s:

aircraft capacity | ground,
m/s 2000m 3000m | 4000m | 5000m | B+1096-2 D 9 | 204 | 23 | 194 |
177 | 166. VN09b-6* | 174 186 | 195 | 171 | 158 | 144. R\190A-4iA-5* |

| |

(nominal mode / 14.6 / 17.5 | 15.3 / 18.4 14.1 / 16; 8 | 12.0 / 14.4 | 12.3 / 14.8 12.5 / 15.0. force .mode) |

well ke

Calculated data (except for ground climb values).

As can be seen from Table 15, the rate of climb of the Messer Schmitts in 1943 not only did not increase, but even decreased (due to the increase in weight). Nevertheless, of the Soviet B109-level fighters in 1943, even in tests at the Air Force Research Institute, only the "stallion" La-5FN was able to achieve. Having appeared at about the same time as B{109ÿ-6, it was inferior here only at altitudes above 3000 m; in the range of 2000-3000 m, both machines showed approximately the same rate of climb, and below 2000 m, the La-5FN had a significant advantage over the ÿÿ1090-6 (it is not clear, however, using the M \ -50 system or not). (Lighter than the “sixes”, B1109 (-2), the new “lavochkin” only exceeded up to a height of about 1500 m, and above it it was inferior, but by the beginning of the widespread use of the La-5FN, the “two” had already left the stage). other Soviet fighters still could not compete with the Messers in rate of climb - although, for example, the Yak-76 and LaGG-3 had a slight increase in climb rate in 1943 (for the first - due to the debugging of water and oil cooling systems, and for the second is due to weight loss.)

Better than all Soviet machines, except La-5 and La 5FN, was in 1943 the rate of climb of the Focke-Wulfs. As can be seen from table 15, E \! 190A-4 and A-5 significantly exceeded the LaGG-3, Yak-76, Yak-9D and Yak-9T in this indicator; up to a height of 2000 m and above 4000 m, they had an advantage over the Yak-9 (and, apparently, also over the Yak- | of the 1943 issue of equal weight). With La-5, the Fokkers had approximate equality: up to a height of 2000 m, the rate of climb of these machines was approximately the same; from 2000 to 3000 m

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La-5 theoretically had some superiority, and above 3000 m - E \ 190A-4 and A-5. In general, in the zone of the main air battles, the Focke-Wulfs in 1943 were soon inferior in terms of lift only to the La-5FN, which, we recall, appeared at the front only in July.

For a reader who is accustomed to the traditional Russian literature opposition of "heavy and clumsy" "Fokkers" to "light and maneuverable" Soviet fighters, such a conclusion sounds quite unexpected. But let's not forget that our literature is largely indebted to the results of tests of the first captured machines of this type - and these machines were not new and serviceable, but worn out and defective!

True, in the opinion of the Soviet staff officers, who published the work "Tactics of Fighter Aviation" in 1943, combat practice also revealed the insufficient rate of climb of the Fokkers. "For all the battles," it was indicated in this work, "it was not observed that the FV-190, at an equal height with our fighters, made attempts to go up. This confirms its lower rate of climb compared to our fighters [...]"336. However, German pilots directly deny the validity of such a conclusion! Thus, a veteran of the Eastern Front, F. Kreitel, who flew the E \! 190 as part of attack aircraft, testifies that "E \! candle"337. It was about the attack modifications of the TsiyahKh "STO Ninetieth", but the fighter ones should have behaved the same way: after all, with the same engine, they weighed no more than the assault ones (the weight of two additional guns and their ammunition load - about 150 kg - on fighters was compensated by approximately less for 200 kg armor weight338). This is also confirmed by the results of tests of the captured EU!190A-3, conducted in July 1942 by the Americans. "It has been found that when a Mustang attacks an E\190, the latter can get away with a sharp climb [...] The climb from level flight is very good at a high angle of climb"33?. Yes, and in Soviet sources, over time, cases of the exit of the Fokkers from the battle began to be recorded

up. According, for example, to the documents of the 900th Fighter Aviation Regiment of the 240th Fighter Aviation Division (whose Yak-9 and Yak-9T operated in the fall of 43 as part of the 3rd Air Army of the Kalinin Front, and from the summer of 44 as part of the 1 th Air Army of the 3rd Belorussian Front), similarly E\\190 behaved in battles on October 10, 1943 in the Nevel region, on August 19 and 23, 1944 in the Vilkavish kysa region (Lithuania), | September 1944 in the area of Shakyaya (Lithuania), on February 17, 1945 in the area of Melzak (East Prussia) ... 5 by the commander of the 4th Guards Fighter Aviation Regiment | th Guards Fighter Aviation Division of the Air Force of the Baltic Fleet V.F. Golubev, and the six E\! th Guards Fighter Aviation Division of the 2nd Air Army of the 1st Ukrainian Front, left in afterburner with a climb ... 341

In a real air battle, the superiority of the E\\!190 in rate of climb could be even more significant than one might think, judging by Table 15. After all, the Soviet "hawks" and the 43rd were hardly able to realize their theoretical rate of climb in battle - if only because that the pilot did not have time to change the pitch of the propeller in time (there was still no automatic control of it on Soviet machines, unlike the E\\190). And on the Yak-1, the maximum climb is

The engine overheated at high speeds also interfered with development ...

At least not worse than that of the Soviet "hawks" of 1943 was the vertical maneuverability of E \! 190 (which, again, is not recognized by domestic authors who never cease to emphasize the "excessive weight" of this machine342). References to this can also be found in Soviet sources. So, in the conclusion made after the first battle of fighters of the 8th Air Army of the Southern Front with E \! 190 (from the 1st assault squadron (1st formation); April 27, 1943) that the , piloted by a good pilot, has an advantage in vertical maneuver "343, it was clearly not by chance that a reservation about a "good pilot" had to be placed ... In the memoirs of some Soviet pilots

comrades-front-line soldiers contain, further, indications that the Yak-9D had worse vertical maneuverability than E \ 190344. This is confirmed by the results of training air battles between the Yak-9D and the captured E\/ 190A-4, conducted in August 1943 at the Air Force Research Institute. After these battles, the pilots of the "Yakovlevs" were recommended to "fight on bends"345; therefore, in vertical maneuverability, the Yak-9D was clearly losing. And this despite the fact that the Fokker that competed with him was, as already noted, defective and, according to flight data, was inferior to a typical E \! 190A-4! Finally, N.G. Golodnikov, who, while fighting in the 2nd Guards Fighter Aviation Regiment of the Air Force of the Northern Fleet, met with E \ / 190 from the 14th (fighter-bomber) detachment of the 5th Fighter Squadron (since February 1944 - - 4th row of the 5th assault squadron) - directly states that the "Fokkers" "were very strong on the vertical" (although worse than Bÿ109ÿ)! 346

Paradoxically, the good vertical maneuverability of the E\\!190, among other things, was also due to its notorious large weight - more than that of the VYa 09, and than any Soviet fighter (see Table 16). First, a heavy aircraft accelerated in level flight has significant inertia. That is why the E \ 190 (distinguished, which is very important in this case, also with excellent handling) and could break away from the pursuer, soaring up steeply or performing a combat turn with a climb. Secondly, the large weight, combined with good aerodynamics and power-to-weight ratio and excellent structural strength, determined the superiority of the Fokker over any Soviet fighter in diving speed. While diving, it accelerated so quickly that even in a gentle dive at an angle of 30° it could reach a speed of 1045 km/h ($1s!)347 - and without any consequences for the integrity of the structure. Meanwhile, for the Lavochkins, the maximum dive speed was only slightly more than 700 km/h, and for the Yakovlevs it was somewhat less than 700 km/h348: further, unable to withstand the pressure of the air, the wooden wings began to collapse... And on

Many "hawks" issued in 1942-1943. it was impossible to develop on a dive and such a speed: due to poor quality

The quality of construction (for example, poor quality gluing of the plywood sheathing of the wing with a pine frame) and the instability of the wooden structure to temperature changes, their strength was even less. So, the Yak-1 aircraft No. 08110, released on December 14, 1942 and managed to complete (as part of the 31st Guards Fighter Aviation Regiment of the 6th Guards Fighter Aviation Division of the 8th Air Army of the Southern Front) only about 70 sorties, to | September 1943 warping (i.e. lagging behind the frame) of the plywood wing skin and fuselage fairing was discovered. After that, however, several more sorties were made on it. In general, it was much easier for the Fokker to get away from the Soviet fighters by diving than this latter from the Fokker. (Most likely, this is why the pilots of the E\\\190 at the beginning of 1943 rarely went up from the battle - diving was for them a more effective way to break away from the enemy.)

In this regard, the assertion of the authors of "Fighter Aviation Tactics" that "in a dive, the Yak-7 catches up with the FV-190"350 looks clearly hasty. Of course, in some battle, the Yak, which had accelerated in advance, could overtake the Fokker, which had just entered the peak, but such a situation should have been an exception. On November 3, 1943, in the Kiev region, A.V. Vorozheykin from the 728th Fighter Aviation Regiment of the 256th Fighter Aviation Division of the 2nd Air Army of the 1st Ukrainian Front tried to catch up on the Yak-76 E \! 190 leaving by diving, but to get closer he could not reach the distance of effective fire, and the “yak”, which exceeded the maximum permissible speed for it, turned out to be so deformed after exiting the dive that it had to be written off ... When the E \ / 190 dived, A.D. Yaki Menko from the 150th Guards Fighter Aviation Regiment, who fought in 1943 on the Yak-1, “you don’t need to chase him - and you won’t catch up, and you will fall under fire from those coming behind”? 321.

But even if the enemy could not be shaken off the tail on a dive, the E\!190 had a great chance of achieving this by going over to climb after exiting the dive. The enormous speed gained on the dive gave the Fokker, which emerged from the dive, such inertia that it would catch up with it - especially if it went up along a gentle trajectory -

it was very difficult. “The rate of climb from a dive,” stated the Americans, who tested the captured E \! 190A-3 in the summer of 1942, “phenomenal.” And Soviet specialists, having tested E \! 190A-4 in 1943, noted another feature of the Fokker that improved its vertical

new maneuverability, - very high stability during the transition to the vertical?53. Thanks to this, the E \! 190 climbing up - despite the lack of slats on it (as, by the way, on all "yaks") - did not lose speed as quickly as Soviet fighters.

Well, in 1943 the Messerschmitts continued to surpass all Russian fighters in vertical maneuverability, except for the few La-5FN. The best rate of climb was still combined with a greater dive speed. “The Me 109 fighter dives well, picks up speed quickly and easily breaks away from our fighters while diving,”354 the authors of Fighter Aviation Tactics noted in 1943, who generally tend to downplay the merits of German technology. At the same time, they had in mind B11090-2, and the heavier B#E109(-6) had to accelerate dive even faster! Here - as in the case of E \\! , but also their all-metal construction. True, it was not as strong as that of the Focke-Wulfs; with very large overloads in the B1109, it happened that the wings flew off, but the Soviet "hawks" could not withstand even smaller overloads! According to the memoirs of the former Luftwaffe pilot H. Knoke, on February 28, 1942, in the Trondheim region, steeply diving on his B # 109E from the Gronheim fighter group from an altitude of 8000 m to 1000 m, he developed a speed of 1000 km / h (but for the commander of the 4th Guards Fighter Aviation Regiment of the 1st Guards Fighter Aviation Division of the Air Force of the Baltic Fleet, V.F. - done by him in February 1944 in pursuit of Bÿ1 10 in the Narva region - ended with the decommissioning of his La-5 due to airframe deformation (“holes, dents, swollen skin”)356. After all, as already noted

elk, the maximum allowable diving speed for all-wood “shopkins” was slightly more than 700 km/h (according to the instructions, 700 km/h357). Due to the insufficient strength of the design of their machines, V. Lipfert, who fought in the II group of the 52nd fighter squadron, testifies, Soviet fighter pilots usually stopped diving when the speed reached 600 km / h, and the unworn ÿ#ÿ109ÿ-6 could dive and at speeds over 850 km/h358. True, there is a known case when the “Messer Schmitt” - ÿÿ109ÿ-6 of captain V. Batz from the III group of the 52nd fighter squadron, leaving on June 1, 1944 in the Yass region from the “Aerocobra” pursuing him, was deformed after reaching speed 740 km/h But this did not happen during a dive, but because of the overloads that arose when the car was pulled out of the dive too sharply35?.

The speed of "breaking the trajectory" was still the only characteristic of a dive, according to which

the second Soviet fighters outnumbered the "Germans". In combat at low altitudes, the slow, with a large "drawdown" exit from the dive, characteristic of B109 and E\!190, threatened with a final collision with the ground. If the pilot tried to bring the car out sharper than usual, then such overloads were created that either (as in the case of W. Batz) deformed the aircraft or crippled the pilot ... However, in order not to be inferior to the enemy in vertical maneuverability in general , the mere advantage in the speed of "breaking the trajectory" was not enough.

Thus, contrary to the belief that prevailed in our country in the 70-80s, Soviet fighter aviation, not only in 1941-1942, but in 1943, in terms of the most important flight data of aircraft, was still inferior to the German one, remaining (By definition, V.I. .Alekseenko), “in the position of “lagging behind-catching up”360. The La-5, Yak-76 and Yak-1 fighters that made up the bulk of the Soviet Air Force in the summer of 1943, V.I. Perov and O.V. Rastrenin directly point out, did not meet the requirements of this period of the war, yielding to German defining characteristics: maximum speed, vertical maneuver and acceleration characteristics ... In order to

to defeat the German "Messerschmitts" on the La-5F, it was necessary to have excellent flight, rifle and tactical training, which most Soviet pilots could not boast of yet [...] "361. The La-5FN and Yak-9 fighters, which appeared in noticeable quantities in the autumn of 1943, are considered by these authors to be “equal to the German ones in terms of the entire complex of flight and combat qualities,” but the Yak-9 is only “partially”362. And indeed, according to the actual flight data - as Yu.A. Guglya rightly notes, the Yak-9 was “significantly inferior” “even Bÿ109E and VN 09ÿ-2 in 1941-1942”!363

The appearance of La->FN, advertised in Soviet literature, obviously did not solve the problem either. True, such a critical researcher as Yu.A. Guglya also believes that this aircraft became “the first Soviet fighter that meets the requirements of the time, capable of fighting on equal terms - in some ways inferior, and in many ways superior - to fight with ÿÿ109ÿ- 2, E\/ 190A-3, A-4 and A-5"364. But this is true only theoretically, and in real air battles, the La-5FN in 1943, in terms of the decisive indicator - speed - not only, as we saw, did not surpass the German fighters, but, apparently, even inferior to them! And perhaps he fell behind in terms of rate of climb! It is not for nothing that V.I. Alekseenko, who during the war years was the chief engineer of the Air Force Research Institute for testing Lavochkins, does not see a qualitative leap in the development of Soviet fighter aviation, not only in the appearance of the Yak-9, but also in the appearance of the La-5FN. Describing the attempts to improve the flight performance of Soviet fighters, undertaken in 1943, he mentions the creation of the La-5FN (without even naming the brand of the aircraft!)

only in passing - and draws an unambiguous conclusion: in 1943, "our fighters were inferior to enemy fighters"...365

This is not surprising, because the possibilities of Soviet industry were still inferior to those of the Germans. This latter still could not give A.S. Yakovlev's fighters a powerful and at the same time reliable water-cooled engine (the refinement of the M-106 engine ended in failure, and the M-107 engine was delayed). And with the old M-105PF, the "yaks" were doomed to lag behind the German fighters in terms of power-to-weight ratio (see Table 16), and hence, in terms of flight data.

Table 16

ENERGY EQUIPMENT OF
GERMAN AND SOVIET FIGHTERS IN 1943368

Maximum (take-off) Engine type
Flight weight, kg Engine power, hp

R-390-2 Allison \/-1710-3

Bo 1
Allison-1710-5 125 | yur 9

pits | m | 10 | 2" - 5 | m |
30739* - l-bfn | pl | 9 |
30552" - 81002 | A | 4 | 03
[81096-65 |
OVbOBAOVEOBAM | 1475 1475/1800" | 3

s Average data on the results of control tests for 1943 are given.

The scatter in values is caused by using data from multiple instances.

"** In the numerator - without using the MU-50 system, in the denominator
le - e use.

The industry still could not provide the proper quality of the only powerful Soviet aircraft engine M-82 - and without this, S.A. Lavochkin's fighters could not get real superiority over the enemy in flight data. The industry still could not

give aircraft builders enough aluminum; although this metal was also supplied under lend-lease from the USA, it was not possible to find it even for the most promising Soviet La-5FN fighters (the prototype of this aircraft had metal wing spars, but in the series they had to be abandoned in the 43rd). Meanwhile, the continued widespread use of wood in the design of fighters not only reduced (increasing weight) their power-to-weight ratio, but also - regardless of the energy

circumference - limited their capabilities in vertical maneuver, as it limited the speed of diving ... Finally, the German production culture was still inferior to the German production culture - very often devaluing the successes of the designers.

However, it still sometimes lagged behind the German culture of aircraft design. So, in the experimental design bureau (OKB) of S.A. Lavochkin, the internal sealing of the airframe was not carried out even on La-5FN!

The foreign-made fighters that arrived in the USSR in 1943 did not have superiority over the "Germans" in the most important flight data, the most numerous of which were the American "Bell R-39" (called in the Soviet Air Force - following the example of the British - " Aerocobras"). As can be seen from Table 14, and R-390-2 - used (along with little different from them R-39K and G.) in the first half of the 43rd - and displacing them in the summer - autumn R-39M and O in the entire zone the main air battles in horizontal speed were inferior not only to German, but also to Soviet fighters. The reason: all the same - insufficient power supply of heavy vehicles with insufficiently powerful engines (see Table 16).

True, Table 14 does not reflect the full picture. It indicates the speed values achieved by the "Aircobras" during tests at the Air Force Research Institute, and the front-line flight data of these machines depended very much on operating conditions. So, in the front-line units of the "cobra" they often made it easier (removing, for example, part of the machine guns and armor), after which the flight data, of course, should have improved. In turn, this gain could be negated by the fact that the front-line "cobras" flew not only on American 100-octane, but also on Soviet 78-octane gasoline (and even when using 95-octane, the R-390-15 speed at altitudes up to 5000 m in afterburner it decreased by 6-14 km/h367). So far it is difficult to say what kind of grief Chee prevailed: V.N. Kotelnikov believes that 78-octane, but from the memoirs of N.G. Golodnikov, who flew Air Cobras from November 1942 to the end of 1944, it is clear that

that in the 2nd Guards Fighter Aviation Regiment of the Navy Air Force, in the worst case, 95-octane was used, and B.A. Shugaev, who fought in the Air Cobra since October 1943, emphasizes that in his 66th fighter "there was no one to pour our gasoline"368. Finally (as the same N.G. Golodnikov testifies), the operation of the Cobra engine in emergency modes allowed it to catch up with even the afterburner E \ U / 190 and surpass it vertically. But, judging by the fact that even in the 19th Guards Fighter Aviation Regiment of the 7th Air Army of the Karelian Front, which fought next to Golodnikov's unit, emergency regimes were not used, this practice was not widespread. And in normal conditions, the Airacobra was inferior to the Messers of 1943 according to flight data. BE109C, notes the veteran of the 19th Guards I.D. Gaydaenko, "significantly" surpassed the "cobra" in vertical maneuverability; in general, having received the "Gustavs", the Germans "began to press us"369. The aircobra, heavy, durable and possessing good aerodynamics, approached the level of flight data of the ÿÿ109ÿ only in terms of dive speed (up to 800 km / h370). But it was not always safe to dive on it: during sharp maneuvering (and, therefore, during a sharp withdrawal from the peak), the 1943 Cobras could deform the tail section of the fuselage and plumage.

In general, the superiority of the Airacobra of 1943 over contemporary German fighters in terms of speed, rate of climb and vertical maneuverability cannot be said. It is impossible to talk about approximate equality, especially since at low altitudes the flight data of the Cobra (both according to Table 16 and, according to the general opinion of Soviet front-line pilots flying Cobras) were frankly low.

In 1943, the speed and rate of climb of the R-40 fighters supplied to the USSR increased slightly: the aircraft of the new modifications R-40K and M (called in the Soviet Air Force, like their predecessors R-40E, "Kittyhawks") were equipped with slightly more powerful engines (Allison U-1710-33 and \U-1710-81, respectively). However, to the level of the German Kittyhawk fighters (provided that their engines are operated on standard re

presses) was still far away. Even worse were the British supermarine Spitfire E MK.UV fighters used by the 57th Fighter Aviation Regiment of the 4th Air Army of the North Caucasian Front in the Kuban in the spring of 1943 and by the 721st Fighter Aviation Regiment of the 8th Air Army of the Southern front in the Donbass in August-September of the same year. These aircraft were created for combat at high altitudes, and at low and medium altitudes their flight data for the Soviet-German front was completely insufficient. In addition, all 143 aircraft transferred by the British

were the tires pretty worn out?" 1. As a result, in terms of horizontal speed in the zone of the main air battles on the Soviet-German front (about 450 km / h near the ground and 545 km / h at an altitude of 5000 m during tests at the Air Force Research Institute ???) The “Soviet” Spitfires MK.UV were at the level of the “To Maghawks” and LaGG-3 of the release of the end of 1941 - and hopelessly lagged behind not only the German, but also the Soviet fighters of 1943 (excluding only the last remaining still on front I-16, I-153 and I-15 bis).

The superiority of the German fighters over the Soviet ones in terms of the most important flight data was maintained even in the first half of 1944, when no new products appeared at the front from either side. True, in the USSR at that time it was possible to slightly increase the horizontal speed of serial La-5FN (see Table 17) - but, judging by the fact that V.I. values 3?3 - not to such an extent as to eliminate the backlog of Soviet vehicles from German ones in real air battles ...

And it was only in June-July 1944 that Soviet fighters began to be used at the front, which had a real superiority over the German ones in horizontal speed (and partly in rate of climb) in the entire zone of major air battles (see Tables 17 and 18). These were the Yak-Zi La-7, produced respectively from March and May 1944. By creating these aircraft, in OKBA. S. Yakovleva and S. A. Lavochkina managed to achieve a significant increase in energy

armament through, first of all, a radical improvement in aerodynamics and weight reduction (see Table 19) - and in the latter case, the designers were helped by a decrease in the shortage of aluminum in the USSR. So, the La-7 was a La-5FN, on which the internal sealing of the fuselage was finally carried out (which gained about 25 km / h of speed! 374), a number of other changes were made to reduce aerodynamic drag, and the wooden wing spars were replaced on equally strong, but lighter metal. And the Yak-3 came out of the Yak-1, which underwent even more radical modernization. Compared to the latter, firstly, it was much lighter - due to a decrease in the area and thickness of the wing, the replacement of wooden spars with metal ones, a decrease in the fuel supply and some weakening of the structure. Secondly, due to the same reduction in the dimensions of the wing, as well as a decrease in the area of the tail, replacing the fabric lining of the tail fuselage with plywood and a number of other measures, the Yak-3 had less aerodynamic resistance than the Yak-1. Finally - after the engine builders "squeezed out the last juices"37> from the already forced M-105 PF, the new Yakovlev received a slightly more powerful M-105PF-2 engine

(since April 8, 1944, it was named after the initials of the chief designer V.Ya. Klimov - VK-105PF-2).

The achievement of superiority in the most important flight data by the Yak-3 and La-7 aircraft was also facilitated by the fact that the speed and rate of climb of German fighters used on the Soviet-German front in the zone of main air battles practically did not increase and in the second half of 1944 Appeared in July 1944 in the skies of Belarus (and in the autumn in the Baltic states), the next modification of the Fokker - E \ 190A-8 - flew only slightly faster than the previous ones, and of the new Soviet fighters it could only catch up with the Yak-3 near the ground, and in terms of rate of climb it was much worse. Aircraft B11090-14 - which began in the same July 1944 to gradually replace Bÿ109ÿ-6 - did not differ from the latter according to flight data. And produced since October 1944, significant

but the faster B11090-19 and VNO9K-4 with 2V605)sSM engines on the Eastern Front were apparently not used until 1945 (fighters with improved flight performance were required primarily by German air defense, which fought with British and American machines, the speed of which already exceeded 700 km / h).

Table 17

ALTITUDE AND SPEED CHARACTERISTICS OF GERMAN AND SOVIET FIGHTERS IN THE SECOND HALF OF 1944376

Speed at height, km/h:

Ground speed,
km/h 4000 m ÿ-390-15
- [600 (nominal
mode . [482.1 -/506 | -/
530 | mode)* HE n [ss [jaze 90 564

3750
573
yum jav &
LELE
Approx.597
tnt.

You 590
(nominal mode approx. 2100

/force mode)

554—572/618—

592-612** 628**
I

203

(nominal mode

/force T

Speed at height, km/h: Maxi

Speed at small Airplane
of the earth, speed, km/h 1000m |
2000m | 3000m | 4000m km/h

height, m
mine
No. ÿ7109b-6 and
@-14 (without/with use - [540 . [580 -| 585/. call.
MM/-50)

AM190A-5 and A-6
(nominal mode / | 534/559 | 553/581 | 561/588 | 558/576 | 583/600 forced mode)

634/660
609/625 | 6000/6300
P190A-8 ,/653
(nominal mode . [571 - [582 | ./591 . [616 | -/633 6000 /boost mode)] Sign

` means no data.

* When using 100 octane gasoline.

** The scatter of values is caused by using data from several instances. $

" The data corresponds to a copy issued in early 1945.

Anticipating table 18, we indicate that the rate of climb of the LaGG-3, Yak-! and the Yak-76 in 1944 was supposed to be practically the same as the Yak-9T - equipped with the same engine and having approximately the same flight weight - the Yak-9D and Yak-9M - to be somewhat smaller than the Yak -9T (due to the greater weight of these modifications). We also stipulate that for German cars in table 18 are indicated mainly

calculated data. The procedure for obtaining them for B#109C-6 (which did not differ here from BIO109C-14) and E\!190A-5 (practically did not differ from E\! 190A-6) was described above; it was also used for E \ / 190A-8. In the latter case, the calculations were based on the value of the rate of climb of this fighter near the ground, known from German sources, and the graph of the change in rate of climb of the E\190E-8 aircraft tested in 1944 by the Guards Research Institute of the Air Force (No. -8377. As in other similar cases, it was assumed that the rate of climb of the new E\!190A-8 specimen at all altitudes exceeds the rate of climb of the E\!190E-8 specimen that has been in operation by the same value as near the ground.

Table 18

RATE OF CLIMBING OF GERMAN AND SOVIET FIGHTERS IN THE SECOND HALF OF 1944378

P

(nominal mode / 13.8 / 17.6 | 14.4 / 18.0 | 15.0 / 17.3 mam boost mode.)

La-5FN

(nominal mode / 18.0 / 22.1 | 18.6 / 22.3 | 19.3 / 19.8 | 17.1

force mode)

La-7 *
Do Do Do
(nominal mode / then mt, Up to 17.8 forced mode) a o mouth [press [press

at 7 | #2 |8 | ima, W11096-
bi-14"* I W and H

ÿÿ190ÿ-5***
14.6/17.5 | 15.3/18.4 | 14.1/16.8 | 12.0/14.4 | 12.3/14.8 | 12.5/15.0) RA 9ÿÿ.8*=* 13 (nominal mode

15.4/17.4 | 16.3/18.3
| 14.7/16.6 | 12.9/14, 3|13.1/14.6 2149 /boost mode) /

* The given values (for the La-7 - indicated after the preposition "to") correspond to the copies of the release of the beginning of 1945. In 1944, the La-7 soon had a clearly lower lift.

** The indicated values were apparently achieved without using the MU\U/-50 system. With the exception of the rate of climb near the ground, the data are calculated.

** Estimated data (except for rate of climb near the ground).

Table 19

ENERGY EQUIPMENT OF GERMAN AND SOVIET FIGHTERS IN THE SECOND HALF OF 194437

Maximum Aircraft
Engine Type. (takeoff) power | Flight weight, kg engine, hp

vk 120 | 38 k |
120 | 3%

205

Maximum
(takeoff) power

Flight weight, kg
engine, hp

Yak-9T VK-1051F | — 120 | 285-3015

Aircraft engine type

Ll5 | 4-8
La5Fn 1
ASh-2FN | 190 I |
610502 10

VK-107A

1475 1475/1800*** | ok3150 | VMM/8010-2
1800 approx. 3800-4000

* The scatter of values is caused by using data from multiple instances.

** The data of a copy issued in early 1945 is given.

*** In the numerator - without using the MU / -50 system, in the denominator
le - using.

We

E
b

E
.

We emphasize that the Yak-3 aircraft and at least a significant part of the La-7 aircraft in the main air battle zone had not only a theoretical (as seen from tables 17 and 18), but also a real superiority in speed and rate of climb over German fighters. Handy for this are the testimonies of Luftwaffe pilots, collected and summarized after the war by W. Schwabedissen. The Yak-3, this author directly points out, “possessed greater speed, maneuverability and rate of climb than the BE09C and E \ 190. The German fighters were inferior to the Yak-3 in everything except armament [and, the German ace V. Lipfert clarifies, diving speed. - 4.S.]. The same can be said about the Soviet La-7 fighter.

True, the La-7's superiority over the "Germans" in flight data was minimal in 1944, in any case, much less than one might think from tables 17 and 18. In combat, the speed and rate of climb of these fighters turned out to be noticeably lower than in tests at the Air Force Research Institute: after all, the ASh-82FN motors (for example, according to the initials of the chief designer A.D. Shvetsov, from April 8, 1944 they were called M-82FN) still “worked unreliably”38!. So, when climbing, they overheated (not allowing, therefore, to reach the theoretical speed

capacity), and at medium altitudes, due to the low quality of workmanship, there was a lack of power: increased gaps led here to a pressure drop in the cylinders. In addition, the La-7 did not receive automatic control of the propeller group - and, therefore, could, like the previous “shopkins”, lack speed and rate of climb in battle due to the fact that the pilot opened the hood flaps to failure and did not managed to change the pitch of the screw ...

And part of the La-7s produced in 1944, production defects, apparently, completely deprived them of the advantage over the enemy in flight data. In any case, in the 176th Guards Fighter Aviation Regiment of the 16th Air Army of the 1st Belorussian Front, such aircraft of this type fought, which did not even exceed the E \ 190 in rate of climb. During the battle with four Fokkers, which took place in January 1945 in the Sokhachev area, a pair of guards

Major A.S. Kumanichkin rose from 800 to 5000 m - but could not be higher than the enemy... Deysky Fighter Aviation Regiment G.A. Baevsky. “A good aircraft,” Georgy Arturovich conveys his impressions, “but it practically did not differ from our La-5fn, I expected more”383. Perhaps it was one of those La-7s of the first series, which were distinguished by the low quality of manufacture not only of the engine, but also of the airframe - insufficiently careful surface finishing, which worsened the aerodynamics of the machine ...

This is apparently why the Germans made the greatest impression on the Germans - as is clear from the above words of V. Schwabedissen - not the La-7, but the Yak-3, theoretically noticeably inferior to the new "Lavochkin" at altitudes up to 3000 miles in speed and climb. In practice, the Yakovlev machine lost quite a bit here to the La-7, and in 1944, maybe even surpassed it. Indeed, on the Yak-3, the lack of speed and rate of climb, common for Soviet aircraft, due to design and manufacturing defects and shortcomings, seems to have been reduced to a minimum! It was the first Soviet fighter on which Law would finally have at least partially automated control

propeller group! (The Yak-9M produced since May 1944 became the second.) mi in combat, at the same time guarantee yourself against overheating of the engine. Thanks to this, the Yak-3 did not lose, like its prototype Yak-1 (and, apparently, other Yakovlevs, except for the Yak-9M), about 6% of speed due to radiator dampers protruding excessively into the air flow. The Yak-3 did not suffer from the overheating of the engine characteristic of the Yak-1 when trying to reach maximum speed: the water and oil cooling systems on it were brought into line with the thermal regime of the engine ...

There was, however, an indicator by which both the Yak-3 and La-7 were inferior to any German fighter of the last year of the war. This is the diving speed: after all, the new Soviet cars, like the old ones, were not all-metal! For La-7 - which had the same plywood wing skin and the same solid wood fuselage as La-5 and La-5FN - the dive speed, like theirs, should not have exceeded 700 km / h by much. And for the Yak-3, it was completely limited to 650 km/h384. The fact is that in order to achieve high speed with an insufficiently powerful engine, the design of this aircraft was excessively lightened, and the strength of the Yak-3 was, according to the testimonies of the pilots, less than that of any other Soviet fighter of those years. If the Yak-3 accelerated on a dive to 700 km / h or more, it often destroyed

the wing was shaking - the plywood sheathing was torn off or the whole plane fell off altogether. Thus, the German fighters had a chance to get away from the Yak-3 and La-7 by diving, and also to catch up with them in a dive.

And in general, “it would be wrong to say” that with the advent of the Yak-3 and La-7, “Soviet aviation technology won absolute qualitative superiority over enemy vehicles”386. We must not forget that the Yak-3 and La-7 accounted for only 24.7% of all fighters produced in the USSR in 1944 (4416 aircraft out of 17,895) - and only 15.1% of

Soviet-made consumers actually sent this year to the Red Army Air Force (2384 out of 15 811387. And if you consider that in 1944 about one and a half thousand more American Airacobras arrived at the front (some of those who arrived this year in the USSR 2127 R-39M and 0388 was sent to the Air Defense Forces), it turns out that even in the second half of 1944 the share of Yak-3 and La-7 in the fleet of Soviet front-line fighters hardly exceeded 25-30%. , used by the Soviet side at the front in 1944, belonged to the former types, which even in the 43rd were inferior to the German ones in speed and (as a rule) in rate of climb - LaGG-3, Yak-1, Yak-76 (release of these three types was discontinued only in July 1944, and in parts they continued to arrive in the fall), Yak-9D, Yak-9T, La-5 (the production of the latter was stopped only in the spring of 1944), La-5FN, "Aerocobra" If some of all these machines reached the level of the "Germans" in speed in 1944, then only the La 5FN of the last (39th and 41st) series, released in the fall, in which - thanks to

replacement of wooden wing spars with metal ones - the weight was slightly reduced. And in terms of rate of climb, only the La-5FN (which was not inferior to the Messerschmitts and superior to the Focke-Wulfs) and partly La-5, which were not inferior (see Table 18) only to the Focke-Wulfs, which were available only in 2-3 out of 10-12 Luftwaffe fighter groups operating in 1944 on the Soviet-German front. Yes, and these machines - La-5 and La-5FN - in the part of the Red Army Air Force in 1944 received almost half as many (4286 versus about 8000) than those inferior to the "Germans" in all the most important flight data Yak-1, Yak -76, Yak-9T, Yak-9D, Yak-9EDD and Yak EM (the last two modifications, produced since May 1944, differed from their prototype Yak-9D: the first with an increased fuel supply, and the second with a reinforced wing and new screw)390.

Moreover, the most common Soviet fighters of 1944 turned out to be the slowest of all - the Yakovlev-9 with the VK-105PF engine (out of 17,895 hawks produced in the 44th in the USSR, they had

approximately 6500-6600, i.e. approximately 36%)391. As can be seen from tables 14 and 17, their speed in 1944 not only did not increase compared to 1943, but, on the contrary, greatly decreased! The reasons for this remain unclear so far; the flight weight of the Yak-9D in 1944 increased compared to the 43rd by only about 40 kg, and for the Yak-9T and Yak-9M it even decreased (see tables 16 and 19) ... One way or another, according to speed, almost all the Yakovlev-9s of the 1944 edition were thrown back to the level of the Soviet hawks of the second half of the 42nd - Yak-1 (Yak-9T), Yak-76 (Yak-9M) and even LaGG-3 (Yak-9D)! True, at the end of the war, at least in the 107th Guards Fighter Aviation Regiment of the 11th Guards Fighter Aviation Division of the 2nd Air Army of the 1st Ukrainian Front, “yaks” began to be filled with 100-octane American gasoline, which provided an increase in at a speed of 10-15 km / h compared with the previously flooded 86- and 90-oct new. Noi on it, admits the veteran of the 107th Guards I.I. Kozhemyako, the Yakovlevs-9 did not catch up with the Messers33? (It is unclear, by the way, why Kozhemyako, who flew in 1944T. and on the Yak-1, Yak-9, Yak-9T, Yak-9D and Yak-9DD, insists that in horizontal speed all Yakovlev-9s are then 10 - 15 km / h was superior to the Yak-1393. Perhaps, the different build quality at the factory No. 292 that built the Yak-1 and the Yakovlev-9 factories No. 153 and 166 affected?) True, in April 1944 they began to produce and such a modification of the Yak-9, which, according to flight data, could well be equal to the Yak-3 and La-7. It was the Yak-9U, on which the VK-107A engine (until April 8, 1944 - M-107A), which was finally launched into serial production, was installed - in terms of power and specific power, it was at the level of the German OV605. In addition, the aerodynamics of this machine was improved according to the Yak-3 model - the fabric covering of the tail section of the fuselage was replaced with plywood and the air intakes of the oil cooler were moved from the nose of the fuselage to the wing. However, due to the underdevelopment of the engine, they began to use the Yak-9U at the front only in October 1944, and until the beginning of 1945 they fought in only one regiment - the 163rd Fighter Division of the 336th Fighter Aviation Division of the 3rd Air Army of the 1st th Baltic Front. In addition, due to the unsatisfactory design of the water radiator on the Yak-9U

in 1944, it was impossible to use the forced operation of the engine - otherwise the latter would immediately overheat. When the VK-107A was operating in the nominal mode, the Yak-9U did not exceed the speed of the Bÿ109S-6 and S-14, and the E\! 1500-4000 m) is clearly only theoretical (see Table 17). Indeed, due to the lack of automatic control of the propeller group and the rapid warping of the plywood wing skins, which was noted by the pilots of the 163rd regiment, this "yak" should have been under-

take in battle the theoretically achievable speed ...

As a result, V. Schwabedissen directly points out, although the Yak-3 “was better than Bÿ109 (-6 and E \! 190”, “this superiority did not have a noticeable effect on the course of the struggle due to the small number of Yak-3, got to the front"394.

In 1945, the proportion of machines surpassing the German fighters of 1944 in horizontal speed (and to some extent in rate of climb) in the Soviet fighter aircraft fleet was steadily increasing. The number of such machines has now increased (see Table 20) Yak-9U: in 1945, he finally received a radiator, with which his engine could also be operated in afterburner. True, in diving this machine was also inferior to the Messers and Fokkers: due to the same fragility of the plywood-covered wing, the dive speed for it was limited to only 650 km/h395. And the Yak-9U did not receive wide application: the VK-107A motor - overpowered in terms of the number of revolutions, with an extremely intense thermal regime - remained extremely unreliable in operation. In the end, most of the produced aircraft of this type - 2267 out of 3921 - were taken out of service altogether36. But after the cessation of production of La-5FN in November 1944, the scale of production of La-7 expanded:; thanks to the improvement in the quality of manufacture, their speed also increased noticeably (see Tables 17 and 20). Since in January - April 1945, 2929 Yak-3 and La-7 and 3355 Yak-9U, Yak-9M, Yak-9T, Yak-9D and Yak EDD397 were sent to the Red Army Air Force, we can conclude that by the end war share Yak-3 and

La-7 in the fighter fleet of the active army (where there were still at least a few hundred - "Aerocobra", La-5FN and Yak-1) approached 40%. And taking into account the Yak-9U, the percentage of vehicles that completely or partially exceed the German fighters in horizontal speed and rate of climb could reach 50 in May 1945.

True, in 1945, along with those who fought in 1944, the Germans were already using other fighters on the Soviet-German front, in terms of speed and rate of climb in the area of main air battles, they were not inferior or even superior to the Yak-3, La-7 and Yak-9U (see Table 20). These were, in particular, those produced since October 1944 and used at first only against the British and Americans Bÿ109S-10 and BE 09K-4 - more precisely, those of the machines of these modifications that were equipped with OVb050SM engines that worked on 96 - octane gasoline SZ. When using the MU \ U-50 system, such “messers” surpassed the Yak-3 and Yak-9U in horizontal speed over the entire altitude range (only in tests at the Air Force Research Institute, the Yak-9U did not yield to them up to an altitude of about 2000-2500 m). And above 3000 m, they overtook the La-7 (yielding to them, however, at low altitudes). In terms of rate of climb in emergency mode

Messerschmitt engines with OVb05OSM (judging by the data of Yu.A.
Google) were superior to any Soviet fighter!

In addition to the latest modifications of the B1109, at the beginning of 1945, E \! 1900-9 fighters ("Dors", as the German pilots called them) began to operate on the Soviet-German front, on which instead of an air-cooled engine VMU \ U! 8 01 was equipped with a higher-altitude water-cooled Lito-213A engine (in Courland, as part of the headquarters detachment of the 51st Fighter Squadron, about two dozen of these machines had fought since October 1944). When using the MU / -50 system, the horizontal speed of these "long-nosed" "Fokkers" in the entire area of \u200b\u200bmain air battles turned out to be practically the same as that of the Yak-3 (although less than that of the La-7 and Yak-9U), and in terms of rate of climb in afterburner, they, apparently, were not inferior or even surpassed the Yak-9U (yet lagging behind the Yak-3 and La-7). (Having tested the captured E \! 190) 0-9 in May 1945, the Soviet pilots concluded that according to flight data, the Dora was inferior to both the Yak-3 and

La-7, and Yak-9U - but this is because the pilots of the trophy did not use the MU / -50338 system.)

Table 20 shows the data for E\\!190)0-9, which are mainly calculated, calculated (in accordance with the method described above) on the basis of a graph of changes in the speed of a captured copy of this machine with altitude during flight without using the MU\U- 50 and known from German sources for ground speed and maximum speed during flight using MU-5039°.

Table 20

ALTITUDE AND SPEED CHARACTERISTICS
GERMAN AND SOVIET FIGHTERS IN 1945^®

Speed at height, km/h:

a 637-643
1 t

Speed at height, km/h:

| s | VI call.
MM/-50)

Note. Sign means no data.

* The data of copies of the issue of 1944 is given.

** The scatter of values is caused by using data from several instances.

*** Estimated data.

=

Anticipating Table 21, we recall that the rate of climb of the Yak-9D and Yak-9M should have been somewhat less than that of the Yak-9T, which is lighter than these machines.

Table 21
CLIMBING RATE OF GERMAN AND SOVIET FIGHTERS IN 1945^01

Rate of climb at height, m/s:

VE La-5FN*

less m.
force mode)

La-7

Ex [measures
about in Force. mode

20 | 218 | 19.2

[185 | 17.2 | 144 | at | 186 |
188 | 19 | 156 | 161 | 43° [81096-6ib-14* | 174 | 186
| 195 | 71 | 158 [| 144_

214

VN09S-10 iK-4s

086050CM

mkr remy padnv daa lich clamp / force.
mode 15.4/17.4 | 16.3/18.3 | 14.7/16.6 | 12.9/14.3 | 13.1/14.6 men | 69. | 169. | 9. | m2. |9. 9 bench press /
boost mode) 16.7 / 16.5 /. | 16.0/. | 14.2/. | 13.2/
12.0/

Note. Sign * means no data.

* The data of the copy produced at the beginning of 1944 are given (there is no information on the machines of the 1945 production).

"The indicated values were apparently achieved without using the MU-50 system.

Table 22

ENERGY EQUIPMENT OF GERMAN
AND SOVIET FIGHTERS IN 1945*02

Z3 | VK1051F
Yak [| KOTA
V1090-6 and S-14 08605A 08V605AM

VN09b-10 iK-4 0860508 08605

You
1

V\9OE-8 VMIM8010-2 3986 - 4278

8\1900-9

and
The data of copies of the issue of 1944 is given.
LJ
In the numerator - without using the ÿ\-50 system, in the denominator -
using.

However, the importance of the appearance on the Soviet-German front of the B#109C-10, Bÿ109K-4 and E\/1900-9 aircraft should not be exaggerated. The "long-nosed" "Fokkers" were still inferior to the La-7 and Yak-9U in horizontal speed; V

in the best case - if we make an allowance for the shortfall in speed by Soviet machines due to the lack of automatic control of the propeller group - they did not exceed them. And in terms of climb rate E \! 190) -9, they obviously lost the Yak-3. As for ÿÿ109ÿ-10 and ÿÿ109ÿ-4, many of them instead of the OV605OSM engine had OVb05OVM - less powerful due to the use of 87-octane gasoline on B4 instead of 96-octane SZ - and, at least, in terms of horizontal speed for aircraft Yak-3, La-7 and Yak-9EU, without condition, were inferior. In addition, the acute shortage of grief that was experienced in the 45th Luftwaffe, for sure

First of all, it touched on higher-quality SZ gasoline, so the Messerschmitts who used it probably had to fly very little. And the effect of the appearance of BE1090-10 and BE109K-4, apparently, did not have time to manifest itself. It is no coincidence that when comparing the flight data of the Yak-3 and La-7, on the one hand, and German fighters, on the other, V. ShVvabedissen does not take into account the B1109S-10 (because he claims that the Yak-3 was superior to the Gustavs) and does does not mention BE109K-4...403 |

In general, it can be argued that in 1945 the parties reached an approximate balance in the most important flight data of their fighters. It should be noted, however, that at least half of the Soviet fighter fleet consisted of vehicles that, in terms of speed and rate of climb, were inferior to any enemy fighter - the Yak-9M, Yak-9T, Yak-9D, Yak EDD, Aerocobras, the latest Yak-1 and La-5 (air force of the Baltic Fleet - and the last LaGG-3). The Germans did not have such weak cars at all; if their fighters of 1945 were inferior in horizontal speed and (or) soon lift to any of the Soviet ones, then only the Yak-3, La-7 and Yak-9U - or only some of these machines - or ONLY "Lavochkin-7" , only in horizontal speed and only at altitudes up to 3000 m!

Thus, during the three years of the war out of four, all Soviet fighters, and in the last year - most of them were inferior to the German ones in terms of the most important flight data - speed, rate of climb and vertical maneuverability.

sti.

Horizontal maneuverability

Let us now look at horizontal maneuverability - a characteristic that was given great importance in the Soviet Air Force. To assess the horizontal maneuverability of aircraft of the Second World War, such a quantitative parameter is usually used as the time of a steady (i.e., performed at the same bank angle) turn, measured at an altitude of 1000 m. But this is clearly not enough. For example, VNO9E-2 in the winter of 1941/42 performed a turn faster than the then "laggi" and "yaks" (in 20 seconds versus 24-26 for LaGG-3 and up to 24 for Yak-1) - and superiority over them had practically no horizontal maneuverability404. The fact is that in fights on turns, not only time is important, but also the radius of the turn. The Messer turned around, though quickly, but not as cool as the Soviet hawks, and the latter, flying in a circle with a small radius, could slip out of the sight of the German pilot ...

However, the radius of the turn is a variable value: it depends on the speed of entry into the turn. The greater this speed, the greater is the radius of the turn: after all, at

a sharp turn at high speeds creates an overload, which the pilot is not able to transfer. For the Yak-1, for example, in the summer of 1942, the turning radius was the smallest at a speed of 250-260 km/h, and at 300-320 km/h, it was already much more difficult to catch the B#E109C-2 sight on the turn. In combat, the attacking aircraft usually has a greater speed than the attacked one, and therefore may not be able to turn around as sharply as this last one - even if, other things being equal, its turn radius was less than that of the attacked one ...

However, even if the radius of the turn were a constant value, it still would not give us an exhaustive idea of the horizontal maneuverability of the aircraft. So, E \! 190A-3 was significantly inferior to the English Spitfire E MK.U both in time (about 22 seconds versus 18) and, all other things being equal, in turn radius (up to 340 m versus no more than 235 m)406 - its ahorizontal maneuverability, as shown by air battles

1942 over Western Europe, was no worse than the "Englishman". The fact is that in a maneuverable battle in the horizontal plane, pilots often change the direction of their turn in order to "catch" the enemy and be on his tail. And here one more parameter is of great importance - the roll speed: after all, in order to enter the turn, it is necessary to roll the aircraft in the right direction. On the Focke-Wulf, this could be done faster than on the Spitfire ...

In general, there is no single, integrating quantitative parameter for assessing the horizontal maneuverability of World War II fighters, and we will have to characterize the horizontal maneuverability of Soviet and German aircraft using not quantitative, but evaluation categories (“good” - “bad”). haya", "better" - "worse" - itip.). All Soviet sources are unanimous that the main German fighter of the Eastern Front - B1109 - was always inferior here to the Soviet "hawks", except for the MiG-3, as well as the LaGG-3 of 1941 - early 1942. (In fact, the Germans do not deny this either.) Due to the too small wing area, the "Messers" usually had more wing loading than the Soviet fighters. And consequently, Bÿ109 also had a higher stall speed, i.e. the speed at which the aircraft can no longer stay in the air and falls down. Therefore, turning into a turn, the Messerschmitts could not reduce their speed to as small values as the red-star hawks, and the radius, as 1943, and the time of the turn turned out to be greater. The efficiency of the ailerons, which create the roll necessary to enter the turn, also had an effect (in particular, therefore, B # 109ÿ-2 in 1942 were not more maneuverable than La-5, although the latter had more wing loading, and turn time (22.6 seconds versus 20-21.5), and - all other things being equal

conditions - turn radius (310 m versus 290 m) ^ 07. Summarizing the experience of fighting with B!109, Soviet specialists in 1943 noted to Lee that “it is difficult to perform sharp turns on it - the aircraft easily burrows on a turn [i.e. falls off. - A.S.], and therefore a sharp turn on the Me-109 is rarely seen "" 08.

However, with the tactics preferred by the BE109 pilots - a sudden attack from above followed by a quick escape to the heights - the superiority of the Soviet "hawks" in horizontal maneuverability did not matter much. And it was impossible to force the Messerschmitt to fight on turns: surpassing all Soviet fighters in dive speed, and, as a rule, in horizontal speed and rate of climb, he could always break away from them. At the end of 1942, Soviet front-line pilots, who studied at the courses at the Air Force Academy, directly noted in conversations among themselves that "academic chatter about the superiority of our fighters in turns is not worth a penny", since "if a fighter cannot catch up with his opponent vertically and horizontally, then he is no longer a fighter, but so-so ... "4 09.

And the second German fighter of the Eastern Front - E \ / 190 - surpassing most of the Soviet "hawks" in speed and rate of climb, was not inferior to almost all of them in horizontal maneuverability!

The last statement for the Russian ear sounds absolutely unusual, even wild: after all, in our country it is customary to represent the Fokker primarily as a “heavy”, “clumsy”, “clumsy” aircraft. The thesis that in a maneuverable battle with the Soviet “hawks” E \! 190, unlike the lighter BE109, had no chance at all, has become simply an axiom in Russian literature! (A departure from this position was outlined only after the publication of the first edition of this book in 2005. 10 themselves in maneuverable air battles, "in terms of horizontal maneuverability, being not only better than the B1109, but also no worse than the exceptionally maneuverable Spitfire E MK.U"M !! Among the sources on which such an assessment is based are the recollections of the New Zealander A.K. -3. “I twirled and twirled,” testifies

Dir, in a desperate attempt to avoid being hit by the scope and at the same time trying to get himself into an advantageous position for the attack. Never before have I seen these Huns could

so to fight and make such things that they now got up on their new "Fokkers"! This battle took place at high altitude, but it was no easier for the Anglo-Saxons at low altitude either... - A4.S.], - recalled his fight with E \! 190, which took place on August 19, 1942 in the Dieppe region in France, the English ace D.E. leech. [...| Near the ground, I made another sharp turn, slipping over the rooftops. However, the Fokker still hung on my tail”!13. And this is a "heavy" and "not agile" fighter!

The good - at least better than B! 109 - horizontal maneuverability of E \! 190 is also evidenced by sources covering the air war on the Soviet German front - both German and Soviet. Direct indication of the authors of the book "Tactics of Fighter Aviation" published in the USSR in 1943 that the E\!190 has "better horizontal maneuverability than [u. - A.S.] aircraft Me-109G "414, can, of course, be neglected: in this work there are many obviously hasty and erroneous conclusions about the flight data of the Fokker (for example, that it is worse than the Messerschmitt" , dives“! 5). But the same conclusion was drawn by the pilots of the 14th Air Army of the Volkhov Front: based on their reports, the political report of the head of the political department of the front dated January 23, 1943, stated that in order to provide Messerschmitt-109 with help in the fight against La-5 to the Germans I had to use the Focke-Wulf-190 aircraft - "having good maneuverability" 416. The German ace H. Lange, who fought on E\! 51st Fighter Squadron, from November 1942 to February 1944: “It seems to me that the Fock ke-Wulf was more maneuverable than the Messerschmitt [...1> 417. And the German pilots, who conducted comparative tests of the E \! 190A-2 in December 1941, and the most maneuverable

SOME OF THE "Messerschmitts" - B # 109E-4 - reported on the superiority of the "Fokker" in horizontal maneuverability without any reservations at all! 8. The validity of these German assessments can be confirmed by a circumstance noted in 1943 by the authors of Fighter Aviation Tactics. Unlike Bÿ109, they pointed out, E \ / 190 take fights with Soviet fighters not only on verticals, but also on bends; “In the experience of battles there are examples when battles [with E\!190. - A.S.] on the turns took quite a long time and several planes of both ours and the enemy were involved in the turn” “1 °. Once the intelligence department of the 1st Air Army of the Western Front in March 1943 generally stated that the Fokker pilots were fighting “mainly on bends and spirals” (it is known from German sources, in particular, that the attack on the bend was then the favorite technique of flying on E \ / 190A-4 sergeant major G. Shak from the Shgroup of the 51st fighter

body squadron) 420.

True, a veteran of the 1st Guards Fighter Aviation Regiment, V.I. Klimenko, claims that the maneuverability of the Fokker was “worse than that of the Messer”; E\!190 and former pilots of the 111th Guards Fighter Aviation Regiment and the 12th Fighter Aviation Regiment of the Navy Air Force S.D. Torelov and V.A. three pilots met with all modifications of the E \ / 190 - from A-2 and A-3 to A-8-421. But who fought in 1943-1945. in the 168th fighter aircraft A.F. Khaila holds the opposite NIA: The Fokker has “better maneuverability” than the Messer! And the already mentioned I.I. Kozhemyako from the 107th Guards Fighter and B.A. Shugaev from the 66th fighter unit testify that the behavior of the BE109 and E \! 190 in air battles was “almost the same”, that the “Messer” and “Fokker” “both are good at all heights, and to fill up one or the other extremely difficult"...122

Finally, the good horizontal maneuverability of the E\U/190 is evident from the numerous descriptions of the battles with the "Fokkers" on turns made by the Soviet pilots participating in these battles. It was especially difficult

here for those who flew less maneuverable than "yaks", "lavochkins". So, a pair of La-5 guards of Lieutenant A.B. Masterkov from the 5th Guards Fighter Aviation Regiment of the 207th Fighter Aviation Division of the 17th Air Army of the South Western Front, colliding in April 1943 over the Seversky Donets with a pair of E\! 190 (from the 1st assault squadron (1st formation)), for a long time could not win in a maneuverable battle - "on oblique loops and turns with large overloads"?

In an even more difficult situation, participating on November 2, 1943, in a battle with a pair of E \! 190 over the Dnieper, in the Pereyaslav-Khmelnitsky region, Guards Senior Lieutenant P.V. Bazanov from the 3rd Guards Fighter Aviation Regiment of the 15th Guards Fighter Air Division of the 2nd Air Army of the 1st Ukrainian Front. Already on the second turn, one of the "Fokkers" (apparently, from the 54th fighter squadron) "confidently went into the tail" of Bazanov's "well shop"24, and the latter was saved only by the fact that there were three times as many Soviet fighters and "German", in turn, hit the sight of the guard captain M.I.Mudrov.

It is possible, of course, that the opponents of Masterkov and Bazanov were more experienced pilots than the Soviet pilots. As you know, the skill of a pilot can often compensate for the shortcomings of his car. But the captain of the 240th Fighter Aviation Regiment of the 302nd Fighter Aviation Division of the 5th Air Army of the 2nd Ukrainian Front, I.N. Kozhedub, by the time of the battle described below, was already one of the leading Soviet aces. Except

In addition, “very strong physically, he could squeeze out of the plane in combat what no other pilot could do”425. And this is especially important in a maneuverable battle in the horizontal plane, where the pilot, trying to turn around as steeply as possible, sharply changing the direction of the turn, etc. , now and then experiences huge overloads. Finally, in that memorable battle with the Fokkers that took place in May 1944 over Romanian Moldavia, Kozhedub fought on La-5FN - easier to control and more maneuverable than La-5 (turn time 19-19 .5 seconds versus 21 for the La-5 of 1943) 426. Nevertheless, the Soviet pilot barely managed

then break away from the E \ / 190 that came into his tail (from the 2nd or 10th assault squadron). “I quickly maneuver,” Kozhedub recalled. - I am doing a cascade of aerobatics. [...] "Focke-Wulf" stuck to me. [...] Squeeze everything that it can give out of the plane. And I break away ""? 7. Let's pay attention to the similarity of the expressions in which the Soviet ace and the Englishman Johnson describe their fights with the "sticking" to them "Fokkers"!

A pair of La-7 guards of Major A.S. Kumanichkin from the 176th Guards Fighter Aviation Regiment of the 16th Air Army of the 1st Belorussian Front in January 1945 in the Sokhachev area (west of Warsaw) fought with four E \! 190 on turns of whole 15 minutes. However, it was not possible to get behind the enemy - although the turning radius of the Lavochkins turned out to be smaller than that of the Focke-Wulfs, and Kumanichkin already had more than 30 official victories on his account?

By the beginning of the 43rd, Lieutenant G.I. German from the 42nd Fighter Aviation Regiment of the 240th Fighter Aviation Division of the 6th Air Army of the Northwestern Front, who had fought from the first days of the war, was an experienced pilot. Nevertheless, in a battle on turns with a pair of E \! 190 from the [group of the 26th fighter squadron "Schlageter", which took place on February 17, 1943 over the Demyansk bridgehead, fighting on the Yak-76, Herman managed to dodge hanging on his tail " Fokker "only" after very large overloads "...129

True, Herman's aircraft was one of 22 Yakovlev 76s equipped (instead of 20 mm) with a 37 mm gun; in terms of weight, these machines approached the La-5 and were less maneuverable than conventional Yak-76s. But, according to the authors of "Fighter Aviation Tactics", on the left turn and ordinary Yak-76 in 1943 fought with E \! tail“30. And in any case, it was not easy for an inexperienced pilot to conduct a maneuverable battle with the “heavy” and “clumsy” E \! 190 on the Yak-76! So, at the end of January 1943, in the Liven area, Sergeant V.G. Aleksandrov from the 900th Fighter Aviation Regiment of the 286th Fighter Aviation Division of the 15th Air Army of the Bryansk Front, only with great difficulty, having made "incredible efforts", was able to break away from

a pair of E\\!190A-4 from the III group of the 51st fighter squadron that entered the tail of his Yak-76 ":1.

And "Yakovlev-9" - according to the systematizer of the combat experience of German pilots V. Schwabedissen - E \ / 190 was generally superior in horizontal maneuverability "-?.

Fighting E\!190 on bends was also not easy on the early Aerocobras (R-39)-2), which, during tests at the Air Force Research Institute, performed a turn with a radius of only about 250 m in just 18-19 seconds433. So, when, on March 15, 1943, Guards Senior Lieutenant A.S. Smirnov from the 28th Guards Fighter Aviation Regiment of the 5th Guards Fighter Aviation Division of the 6th Air Army of the North-Western Front entered the Staraya Russa area on the Aerocobra in a maneuverable battle with the Fokker, “the German could not approach Smirnov in any way, and Smirnov could not approach him in order to get behind him. Both cars turned out to have the same turning time”434. And again, it was clearly not the superiority of the German pilot in the art of piloting: A.S. Smirnov served in fighter aviation since 1938, fought in the Finnish campaign, and participated in the Great Patriotic War from the first days. And in the end, according to his story, it was precisely the perfected piloting technique that helped him to emerge from this battle as a winner. Starting to turn with a small climb, using trim tabs and an external slip technique, the Soviet pilot managed to reduce the radius of the turn and still get into the tail of the "German" ...

In general, it should be recognized that the assertion, traditional for domestic literature, about the “sluggishness” and “low maneuverability” of the E \ 190 is a myth and that in terms of horizontal maneuverability this aircraft was superior to the VPO09 and, at least, was not inferior to most Soviet fighters (according to V. Schwabedissen, only the Yak-3)435 had an unconditional superiority over the Fokker here. Due to the very large load on the wing, the time and turn radius of the really very heavy E \! 190 were (ceteris paribus) greater than that of Soviet fighters and B1109 (although, according to H. Lange, “using large overloads ”, an experienced pilot could perform the same sharp turn on E\\! 190 as on the “Messer

Schmitte")436. But the Fokker was distinguished by the exceptional efficiency of the ailerons, which allowed it (as, by the way, the Yak-3) to easily enter into a turn even at very high speeds and very quickly change the direction of the turn. “([...| Superiority over BE109 is especially obvious with successive turns to the left and right and at high speeds,” German test pilots wrote at the end of 1941 about what we consider “clumsy” and “clumsy”

E\/190...437

The myth about the “low maneuverability” of the Fokker arose, apparently, because we began to judge this aircraft from the very beginning by its captured copies tested in the USSR in 1943. These copies, we recall, were defective and worn out! Only this last circumstance can explain, for example, the fact that, having flown over E \ 190A-4 No. 2362, test pilots from the LII NKAP concluded that the Fokker does not go from one turn to another very easily - moreover, they attributed this is at the expense of the “slightly heavy” control of the ailerons”38. After all, without exception, all German, English and American pilots who flew the E \! 190 and whose testimonies are given in Russian-language literature - H. Lange, F. Seif fardt, F. Kreitel, A. Galland, E. Brown, G. Landkvist and others - in one voice say that the controllability of the Focke-Wulf was good or even excellent, that "the ailerons move easily and even their slight displacement causes a significant roll"!439 Yes, and Soviet testers from the Research Institute The Air Force, flying on another captured E \! 190A-4 (No. 2310), noted that the aircraft went from turn to turn easily, and the controllability in a transverse relationship was good ... 440

Pilot performance and ease of control

The aerobatic qualities of Soviet and German fighters and, more broadly, their ease of control should be considered in more detail. After all, as noted above, the superiority of the pilot over the enemy in the technique of piloting NIA can often compensate for lower than that of

8 A. Smirnov 25

enemy, the flight data of his car. And the simpler the aircraft in piloting, the easier it is to control it, the faster the pilot will be able to become a skilled aerobatic pilot. In addition, good aerobatic qualities and the general simplicity of aircraft control make it much easier for the pilot to conduct combat. Due to the simplicity of the aircraft in piloting, the presence of automatic control of the engine and propeller, the pilot gets the opportunity to pay less attention to control and more to observing the air, assessing the situation, making decisions, aiming, shooting - in a word, combat as such. Ease of piloting and good controllability of a fighter also save the pilot's physical strength, which means that they help him endure the enormous g-forces that occur during vigorous vertical maneuvering and cornering. At the beginning of the war, the bulk of Soviet fighters were inferior to German ones in terms of aerobatic qualities. The "strictness" in piloting inherent in the I-16 aircraft is well known - especially the modifications of 1938-1941, i.e. just those who participated in the Great Patriotic War. Due to excessively rear centering due to shortening

In the words of V.I. Kondratiev, these “short “barrels”41 were extremely unstable in flight, so that the pilot now and then had to fend off the yaw of the machine with the movements of the control stick. In addition to diverting the pilot's attention, this put a lot of stress on his arm and physically tired him. In addition, the instability of the "donkey" made it difficult to aim and keep the enemy in sight while firing. (V.I. Kondratiev attributes this shortcoming to the I-]153, but M.A. Maslov in his monograph on the "seagull" indicates that, unlike the I-16, the I-153 allowed flight with an abandoned control stick, i.e., it was quite stable.““42.) The unsatisfactory aerobatic qualities of another mass-produced Soviet fighter of 1941, the MiG-3, are also well known. “He did not forgive mistakes in piloting, he was designed only for a good pilot,” wrote G.N. Zakharov, who flew all Soviet “hawks” of the 20-40s, about this aircraft. - The average pilot on the "instant"

automatically passed into the category of the weak, and already the weak simply could not fly on it” “43. In particular, during vigorous maneuvers - for example, when trying to lay a turn as steeply as possible - the MiG-3, which was distinguished by a large wing load and did not always have slats, was inclined to break into a tailspin (to a lesser extent, but this disadvantage was inherent in the LaGG-3, which until August 1942 were also produced without slats). In addition, the “migi” and “laggi” were very difficult to control (i.e., they were distinguished by mediocre controllability): in order to perform one or another maneuver, the pilot in many flight modes had to apply very great efforts to the control stick” 4.

Opponents of the I-16, "MiGs" and "Luggs" - VYO9E and E - were, according to Soviet specialists, "stable and easily controlled"45. “It was easy to operate, accessible to an average pilot,” wrote, for example, the then People’s Commissar of the Aviation Industry A.I. Shakhurin, who was familiar with the results of its tests in the USSR, wrote about VNO9EE “6. Stable in flight, "Messers" did not "take away" when firing away from the line of sight, like "donkeys". Complicated MI On the Messerschmitts there were only takeoffs and landings: due to the narrow gauge of the landing gear, this aircraft strove to roll over on its side during takeoff and run, and the pilot was required to exert the utmost attention in order to prevent this.

Differences between Soviet and German fighters in flight performance began to smooth out in 1942, when I-16s and MiG-3s began to disappear from the aircraft fleet of the Red Army Air Force and the share of OKBA.S. Yakov Leva aircraft increased. The Yak-1 [from the very beginning stood out among the Soviet "hawks" by its ease of piloting and good controllability - obviously not inferior here to BEO09E and EA, the piloting qualities of the Yakovlev-7 were even better (actually, for the sake of

their improvements were created by the Yak-7, converting the training Yak-7UTI into a combat fighter). At the same time, the aerobatic qualities of the Messerschmitts deteriorated by the end of 1942. Replaced "Emil" and "Friedry

boor "VN 09ÿ due to the increased load on the wing were noticeably harder to manage than their predecessors, and the three-gun Bÿ109ÿ-2 / K 6 were frankly heavy.

However, it would be wrong to say that from the end of 1942 it became easier to fly a Soviet fighter than a German one. Firstly, from the same end of 1942 - the beginning of 1943, the Yakovlevs began to push the La-5 and Aero Cobra aircraft. La-5, like their predecessors LaGG-3, were distinguished by heavy control and were “very strict” on takeoff and landing (though in the air, A.I. Ryazanov, who fought in the 10th Guards Fighter Aviation Regiment of the Navy Air Force, points -5 in piloting was “very easy”“4?7). Aero Cobras, on the other hand, easily fell into a tailspin: due to the original layout, in which the engine was located in the middle part of the fuselage, behind the cockpit, they were very sensitive to changes in centering in flight (and it changed, for example, as a result of using up ammunition). Sharp maneuvers on the Cobras also led to a spin, and it took considerable physical effort to get this car out of a spin. For a pilot who did not master the Aerocobra well enough, it was so dangerous that, for example, the commander of the 5th Air Army of the 2nd Ukrainian Front, S.K. May and | June 1, 1944 - was forced to refuse to put into battle an entire division of these aircraft (304th fighter), and then use it only to a limited extent ...

Secondly, from the end of 1942, the Germans began to rapidly increase the proportion of EV190 aircraft - distinguished, as already noted, by very good controllability. In domestic literature, persistently depicting the Fokker as a much less effective fighter than the Messer and Soviet hawks, it is argued that the E \! 190 was inferior to the Messerschmitt here too, "but Western sources say the opposite. “Piloting was just a pleasure!” - the already mentioned veteran of the 51st Luftwaffe Fighter Squadron H. Lange recalled the E \ / 190, who directly wrote that the B! 109 seemed to him “more difficult” to manage than the Fokker. That "the car was pleasant to drive

F. Seiffardt, who fought on E \ / 190 in the 2nd assault squadron, also noted that it was easier to pilot the Focke-Wulf than the Messerschmitt. “The pilots liked the car, especially in terms of control, ha-

rakteristics and weapons, ”A. Galland also emphasized, describing the re-
equipment of his 26th fighter squadron from Bÿ09E to E \! 190A-1 at the end
of 1941. The Americans, having tested the captured E \! 190A-3 in the summer
of 1942 , highlighted in the report "very easy operation"; about the "excellent
handling" of the "Fokkers" and wrote flying them in 1942-1943. American pilot
G. Landqvist and English E: Brown“?. Landing and taking off on the E\\!190
with its widely spaced landing gear was also easier than on the VNO9...

True, according to Soviet testers, the Fokker was still “more difficult”
to control than contemporary Soviet fighters”50. However, once again we
have to recall that the E \! 190A-4 Nos. 2310 and 2362 flown around in 1943
by the Guards Research Institute of the Air Force and the LII NKAP were
very worn-out machines and from new (and from simply not been in
overhaul) specimens in the air should have been differ quite a lot. This is
confirmed, in particular, by the fact that, according to the LII testers, when the
Fokker is taken out of a dive, heavy loads occur on the control stick, and
the Americans who flew the less worn-out copy of the E \ 190A-3, on the contrary,
emphasized that in this case the pilot does not need to reduce the load
on the control stick with the help of trimmers, since the control is already
"very easy""51. D.B.Khazanov also writes about the fact that Soviet
testers assessed E\!190 “perhaps too strictly”?2.

In addition, for some reason, Soviet aviators forgot about the absolute
superiority of the E\!190 over Soviet fighters in terms of control automation.
And this more than significantly facilitated the management of the Fokker in
battle! For example, on the "Lavochkin" for a sharp increase in flight speed,
the pilot had to successively move 6 (!) levers, and on E\/190 it was enough
to move

only one (gas sector): everything else was done by the automatics of the central
engine control station ... Such advantages, it seems, could well compensate
for the circumstance that really complicated the piloting of the Fokker: due
to too much load on the wing and lack of slats on a very steep turn, he lost speed
too quickly and fell down - in this case, often going into a tailspin and losing
up to 1000 m of altitude "?3.

Thirdly, the heavy control (slow response to the actions of the pilot with
the rudders) of the B1109C also had to be compensated to a large extent by
the presence of automatic control of the propeller group, which on Soviet
fighters of 1942-1943. from missing. Having become acquainted at the
end of 1942 with the control features of captured BE109, Soviet front-line pilots

Vicki, without even testing the car in the air, started talking among themselves that “flying a Messer is as easy as driving a car”...154

In 1944-1945. the aerobatic qualities of Soviet fighters as a whole have become even better. Differing, in the words of the pilots, "oak" (mediocre controllability) La-5 were gradually replaced by the easier-to-fly La-5FN and La-7; The Yakovlev-9s, which have become the most common red-star hawks, inherited the excellent aerobatic qualities of their common Yak-7 prototype. And the Yak-3 was just phenomenally easy to drive! According to G.N. -3 "was almost intangible" to the pilot*>5. And the ease of piloting made this fighter accessible to a pilot of any qualification of the CII ...

However, the automation, which allowed the pilot in combat to pay less attention to control, on most

Soviet fighters did not appear, and in 1944-1945. (The only exceptions were the Yak-3 and Yak-9M, which received automatic control of the dampers: the first for the water and oil radiators, and the second for the water radiator). The aerobatic merits of the La-5FN (which K.Yu. Kosminkov writes about as “one of the most easily controlled fighters”455) and La-7 should not be exaggerated either. Mastery of the La-5FN aircraft for a low-skilled pilot is "completely out of the question," pointed out in September 1944 in one of his reports the commander of the 303rd fighter G.N. takeoff and landing). It remained a mass fighter in 1944-1945. and the insidious Airacobra...

In general, managing a Soviet fighter of the Great Patriotic War was no easier, and perhaps even more difficult, than a German one. Although the aerobatic qualities of Soviet vehicles in the second half of the war turned out to be often (but not always!) No worse, or even better, than the German ones, the lack of automatic control of the propeller group significantly complicates the control of the Soviet "hawk" during air combat - with its characteristic sharp changes in altitude and flight speed and engine operation mode. If a Soviet fighter pilot in battle had to constantly monitor the temperature of water and oil, close or open the radiator shutters or hood doors, switch, following changes in altitude, the propeller pitch and supercharger speed, regulate the composition of the fuel-air mixture - in a word, in

constantly monitor the change in a number of parameters and manipulate several levers, then the German pilot, for whom all this was done by automation, could concentrate on conducting the actual battle. This means that the probability of winning an air victory for the Germans (ceteris paribus) turned out to be greater!

And this despite the fact that Soviet pilots needed more easy-to-fly aircraft than German ones! After all, their training was on average lower than that of the Germans.

Firepower

At the beginning of the war, almost all Soviet fighters were inferior to the Germans in terms of firepower. First, most of them did not have air guns. At 26% available to | June 1941 in the I-16 combat units (type 5 vehicles) there were only two 7.62-mm ShKAS machine guns, on all I-15 bis - four slower-firing 7.62-mm machine guns PV-1, for 46 .4% I-16 (type 10, 18 and 24 machines), as well as more than 90% I-153 - four ShKAS, 14.2% I-16 (type 29 machines), less than 10% I-153 and 63% built in 1941 MiG-3 - two ShKAS and one 12.7-mm Berezin machine gun (in the BS version), approximately 10% built in the 41st MiG-3 - two BS each, and for 22% of the MiGs of the 41st year and for parts of the LaGG-3 - two ShKAs and three Berezin machine guns (in the BS and BK versions) or a 12.7-mm Berezin UB universal machine gun (in the version UBS)“3. And bullets - especially rifle (7-8-mm) caliber - would not be able to cause such destruction in the structure of an aircraft during the Second World War as shells, the damaging effect of which is determined not so much by their kinetic energy as by the energy of the explosion. From a burst of 7.62-mm bullets in the wing, for example, of a fighter, only a chain of small holes remained; a burst of 20-mm shells either led to the formation of huge holes (and then the wing ceased to create lift), or destroyed the power set of the wing (and then the latter could fall off altogether). In addition, the airgun projectile certainly set fire to even a sealed gas tank; from bullets, only explosive and incendiary bullets could do this. Particularly ineffective was machine-gun fire on the twin-engine bomb carriers He11] and L188 - targets that were most often encountered by Soviet pilots just in 1941-1942. It was not easy to hit the engine or the pilot, and the fuselage and wings of these large all-metal machines could absorb a significant amount of bullets without much harm to themselves. “I heard his bullets pierce our fuselage,” recalled a former navigator from the P group of the 27th bomber squadron.

"Bölke" L.Hafigorst about the battle of his He1 11 with a Soviet fighter (apparently, I-153) in the Stalingrad region on October 9, 1942. However, the riddled "Heinkel" was still able to withstand overloads when diving at an excess of the maximum permissible speed (about 650 km / h) and, breaking away from the pursuer, go home at maximum speed.

Let us add that the striking effect of the bullets of the main Soviet aviation machine gun at the beginning of the war - ShKAS - was clearly insufficient even for rifle-caliber weapons. The ShKAS bullet weighed only 9.6 g (a third less than that of the German 7.92 mm MC17) and lost kinetic energy so quickly that even at a distance of 300 m it did practically no harm to the enemy aircraft460. Sometimes the "Messers" continued to fight even after the ShKAS burst hit the engine! It is not for nothing that Soviet pilots began to call this machine gun a "humane weapon" ... 46! In addition, for the notorious huge rate of fire of the ShKAS - for which this machine gun was praised for decades in Russian literature - the aircraft armed with it had too little ammunition. “If you press it, everything flew, and there was nothing to hit with,” recalls B.N. he was echoed by the minder of the 131st Fighter Aviation Regiment (which also fought in the 41st on donkeys) V.M. ShKAS releases everything, 1800 rounds per minute - go crazy.
Experienced people remember this, but the young one delayed a little, and there was nothing to shoot with...462

The German fighters of 1941 were all armed with cannons. In addition to two 7.92 mm MS17 machine guns (with a 12.8 gram “63” bullet), the V{109E-2 had a 15 mm MS151/15 cannon, the VP 09E-4 had a 20 mm MS151/20, and the VPO9E - two 20 mm MCEE

A minority of the Soviet "hawks" of 1941 - Yak-1, YakK-7 and 13% available on June 1, 1941 in combat air units I-16 (cannon vehicles of types 12, 17, 27 and 28)464 - At first glance , was armed no worse than the Messerschmitt TOV. "Yaks", which, along with two ShKASs, had a 20-mm ShVAK cannon, and were equal in number and caliber of barrels

valuable BE109E-4, and cannon "donkeys", armed with two ShKAS and two ShVAK, - BE09E. But the ShVAK cannon was significantly inferior to the German aircraft guns of the same caliber in terms of the damaging effect of its projectiles (and the MS151/20 cannon in terms of their ballistic characteristics). Being converted by B. G. Shpitalny and S. V. Vladi world from the 12.7-mm ShVAK machine gun, this system turned out to be “clearly inferior” as a gun. She only had a “cannon” barrel, and all the automation remained the same, “machine-gun”. Therefore, the projectile had to be designed defective, small; its dimensions and geometry

were due to the need to "fit into the existing geometry of automation"\465. If the MYEE cannon had a projectile weighing 124 gau MS151/20 - 115 gtou ShVAK - only 96 g466 (i.e., 20-30% less); hence the less damaging effect than that of German ammunition. Thus, the "yaks" of 1941 in terms of firepower were only equivalent to the "messers" with a 15-mm cannon - BE109E 2 - the share of which in the fighter aviation of the luff twaffe in the East was steadily decreasing. (The same, apparently, must be said about three hundred MiG-3s with two 12.7-mm BS and about one and a half hundred "tomahawks" released in September - December 41st - they did not have a gun, but had along with four 7.62 mm, two 12.7 mm Kolg-Browning machine guns). Aircraft BE O9E-4 in terms of firepower in the 41st were not inferior only to the cannon I-16, LaGG-3 and part of the MiG-3. LaGTi, produced in the spring and summer of 1941 (series 1-3), in addition to two ShKASs, had as many as three large-caliber, 12.7-mm Berezin machine guns - one BK and two BS (differing - due to the need to shoot through the disk screw - somewhat smaller than the BC, soon firing rate). Some of the MiGs were equipped - along with two ShKAS - with three BCs (although in August 41, two of them - suspended under the wing - were removed everywhere due to firing failures). And already a pair of Berezin machine guns in terms of total firepower surpassed one ShVAK cannon: “a comparative integral assessment gave” for one BC or BS “75-80% efficiency compared to a 20-mm caliber”467. On those produced in the fall of 1941

LaGGahs of the 4-7th series were equipped with two ShKAS, one BS and one ShVAK cannon, and on LaGG-3, built in the winter of 1941/42, one ShVAK and one UBS (synchronous version of the modified Berezin machine gun - UB) "468.

During 1942, the armament of Soviet fighters as a whole became much more effective. The I-16, I-153 and MiG-3 machine guns gradually disappeared from the front-line units, and the “yaks” instead of the “humane” ShKASs received large-caliber UBS: Yak-7 - in April 1942 (with the advent of the Yak-76 modification), and Yak-1 - in October. At the same time, the Yak-1 (like the LaGG-3, as well as the Yak-9 produced since October 1942) began to carry one heavy machine gun in addition to the cannon, and the Yak-76 two. Such a composition of weapons (one ShVAK plus one or two UBS) was supposed to compensate for the inferiority of the ShVAK shells in comparison with the German ones and make the “yaks” and “laggis” - these main Soviet fighters of 1942 - armed no worse, atoms and better serov". After all, in addition to the fact that the UBS bullet weighed as much as 48 g, 20% of the ammunition load of this machine gun on "yaks" and "laggs" was explosive or incendiary-explosive bullets - in fact, mini-shells, which, bursting, made holes in the skin of an enemy aircraft diameter up to 200 mm, i.e. only slightly smaller than the fragmentation-incendiary shells of the ShVAK gun (250-300 mm)469.
By

According to M.M.Kibkalov, who fought on the Yak-76 in the 163rd Fighter Aviation Regiment, two UBS “in terms of total firepower were not only not inferior to one 20-mm cannon, but in some respects even surpassed”70. Most of the Messerschmitts of 1942 (V109E-4i O-2) had one, although excellent, 20-mm MS 151/20 cannon, as before, supplemented only by a pair of rifle-caliber machine guns ...

However, the equality or even the superiority of the Yaks and Laggs over the Messerschmitts that seemed to be achieved here often remained only theoretical until the spring of 1943. To ensure a damaging effect no less than the Upushki MS 151/20, the pilot of the Yak or Lagga needed

shoot from ShVAK and UBS at the same time. And this was complicated by the design of the descent of the weapon. Until the spring of 1943, on all Soviet fighters, the descent was carried out using two (in this case, cannon and machine gun) triggers located on the control stick. In general, it was possible to press them at the same time (this is confirmed, in particular, by the memoirs of G.I. -76471), but rather difficult. Not in vain, in fact, F.F. Arkhipenko, who fought in 1942-1943. in the 17th 508th Fighter Aviation Regiments, on the Yak-1 and Yak-76, persistently, overcoming the resistance of military technicians, he sought to bring the descents and the cannon and the machine gun to one trigger on his "yak"! Therefore, it can be assumed that often the pilots of "yaks" and "laggs" were forced to open fire either only from the ShVAK, or only from the UBS ... In addition, until the spring of 1943, it was more difficult for a Soviet fighter pilot than 'German, open fire in time. The triggers, although they were on the control stick, but in order to press them with the thumb of the same hand with which the pilot controlled the plane, it was necessary to apply such a great effort that, in addition to the trigger, the control stick itself came into motion - and the nose of the machine began "walk", knocking down the sight. The pilot kept his other hand on the gas sector located on the left side of the cockpit. To transfer it from there, it took, of course, literally a second - but even in this second the enemy could be out of sight! And “in aerial combat,” emphasizes the same F.F. Arkhipenko, “it is not so easy to catch an enemy plane in sight [...|”>472. The pilot of a German fighter could easily press the trigger buttons for the cannon and machine guns with the thumb and forefinger of the same hand with which he held the control stick ...

True, since the beginning of 1942, Kittyhawks with six 12.7-mm Colt-Browning machine guns fought as part of the Soviet Air Force, which were not inferior in efficiency to the UBS. Such a battery was, no doubt, equivalent to, if not three, then two ShVAK guns. Part of the Hurricanes rearmed

into two UBKs (the winged variant of the UB machine gun), and then into two UBKs and two ShVAK cannons?3. And from June 1942, La-5s with two ShVAKs began to arrive at the front, the total ammunition load of which consisted of 400 shells (against 130-140 for Yaks and Laggs and 150 for Messers with one 20-mm cannon) “ 74. But these machines were not numerous (“kittyhawks” for the entire 42nd in the USSR they received 502475, and on most La-5s of the 1942 issue, in order to lighten the machine, a UBS machine gun was installed instead of one of the guns), ay of the Germans in the fall 42 th, fighters appeared with both three and four guns - and more effective than ShVAK. These were the B#109S-2/B6 gunboats, nicknamed "gunboats", which, along with two 7.92 mm machine guns, carried more than one MC151/20 atri cannon (with a total ammunition load of 390 rounds "76"), as well as E \ / 190A-3, on which, along with two 7.92 mm MS 17 machine guns, there were as many as four guns with a total ammunition load of 620-680 shells "77 - two MS151 / 20 and two MCEE The creator of the "one hundred and ninetieth" K. .The tank gave him the very apt name "Shrike" - this small but powerful beaked bird is known to be a merciless killer, tearing off its victims' heads. Actually, the word "U/'arzeg" is translated from German not only as "shrike", but also as "murderer" ...

Of course, the effectiveness of these three- and four-gun batteries should have been somewhat reduced by the fact that, in contrast to the Yaks, Laggs, La-5 and single-gun Messers, all the Fokker guns were not placed in the fuselage, and in the wing, and two of the three B{109C 2 / K6 guns - under the wing, at a considerable distance from each other and from the axis of the aircraft (i.e., from the aiming line). This reduced the accuracy and accuracy of fire: the paths of the wing and underwing guns converged only a few hundred meters ahead, and at short distances, shells from widely spaced guns could miss the target. However, H. Lyange, who fought on E\! 190 in [the group of the 51st Fighter Squadron, points out, "this was of serious importance only in combat with fighters" "78 - i.e. with small aircraft. And in some cases, the Fokkers on

a small distance hit from all six firing points checks and fighters. So, on August 5, 1943, in the area of the city of Kromy, E \! 190, firing from an extremely short distance the Yak-76 Lieutenant A.S. Morozov from the 163rd Fighter Aviation Regiment of the 336th Fighter Aviation Division of the 16th Air Army of the Central Front he fired bursts of machine guns into the engine, shells from the MC 151/20 guns located closer to the fuselage into the dashboard, and shells from the external MCEE guns into the wing console of the Yak. And when, on April 25, 1945, a pair of Fokkers, attacking five Il-2s of the 154th Guards Attack Aviation Regiment of the 307th in the Berlin area

assault air division of the 1st Ukrainian Front, opened fire from all firing points, from one of the attack aircraft "all the skin fell off" ... 179 he notes, due to the proximity of the engine, it often overheated and jammed.However, G. Rall, who flew the E \ / 190) -9 as part of the 300th fighter escort, was of the opposite opinion on this matter. In a maneuverable battle, he pointed out, the fuselage guns were more profitable: the wing ones failed due to the vibration of the wing, which experienced large overloads during maneuvering. it was part of the Hurricanes, which received in the USSR instead of English machine guns, four winged ShVAKs. But it was extremely difficult for the pilots of these slow-moving machines to realize the power of their weapons; above, the testimony of S.F. Dolgu, who fought on the Hurricanes in the 180th Fighter Aviation Regiment, was already cited, according to which “it was possible to shoot down only if you caught” - i.e. wait until the enemy himself is right in front of you ... In general, as luck would have it, both the 41st (then they were cannon I-16s) and the 42nd (“Hurricanes”), those fighters had the most powerful weapons in the Soviet Air Force , which were most inferior to the German ones in terms of flight data - and for which, therefore, it was more difficult than others to take a position for firing. The only exceptions were a few dozen LaGG-3 and Yak-76s

37-mm cannon instead of 20-mm - used mainly in the 42nd Fighter Aviation Regiment, first on the Western and then on the North-Western Front.

During 1943, the armament of Soviet fighters increased again. First, the conditions for its use by pilots in combat have improved. Since the spring of 1943, all "hawks" newly produced in the USSR began to be equipped with a control stick of the same type that was on the "Messers" and "Fokkers" - with trigger buttons instead of triggers, located so that they could be done without large efforts to press with the thumb and forefinger of the same hand that clasped the control knob - and press at the same time. Now the Soviet pilot could open fire at the same moment when the enemy aircraft was in sight. And the pilots of the Yaks and Laggs were, in addition, guaranteed the opportunity to fire from a cannon and a machine gun at the same time - so that the firepower of these fighters, not only theoretically, but also in practice, was equal to that of most Messerschmitts, ay Yak-76 - even surpassed.

Secondly, despite the disappearance of the four-gun Hurricanes from the front-line aviation units, the proportion of vehicles with more powerful cannon armament than the ShVAK alone increased significantly in the fleet of Soviet fighters. The share of two-

cannon La-5 (together with a more powerful engine M-82F. "Lavochkin" in December 1942 again received a second ShVAK instead of UBS) and La-5FN, and, in addition, a massive flow of fighters with 37-mm guns began. Since the spring of 1943, Aero Cobras with an American cannon of this caliber M4 (P-39) - 2, K, G, M, MiO) began to be used in large quantities), as of July - Yak-9T with the Soviet NS-37 (In addition to the cannon, the Air Cobras of the Soviet Air Force carried two 12.7-mm Colt-Browning machine guns that fired a 43-gram bullet! and were not inferior in power to the UBS, and sometimes also four 7.62-mm , and Yak-9T - one UBS each).

However, to realize the possibilities of its most powerful

weapons, the pilots of "cobras" and Yak-9T did not always succeed. On the Airacobra, the cannon trigger was located very unsuccessfully, and in the heat of battle, afraid to miss the enemy from the sight, the pilot often pressed only on the trigger of the machine guns. True, the triggers of machine guns and cannons on the R-39 could easily be attached to one trigger. Already in April 1943, this was done on the plane of the guards of Captain A.I. Pokryshkin from the 16th Guards Regiment of the 216th mixed air division of the 4th air army of the North Caucasian Front, subsequently all the Air Cobras 205- th Fighter Air Division; no doubt the same idea has been reached in other parts. However, it is still impossible to say how large the SHARE of Airacobras equipped with a single descent was (it is known, in particular, that in the 19th Guards Fighter Aviation Regiment of the 1st Guards Mixed Air Division of the 7th Air Army of the Karelian Front on one trigger descent weapons were not withdrawn). In addition, it was very difficult to hit the target from the M4: it was distinguished, firstly, by poor flatness, i.e. its projectile flew along a too steep trajectory - with the aiming line (which, we recall, is a straight line) coinciding only for the first 50-70 m and, therefore, requiring a very large lead when aiming. To this poor flatness was added a very low rate of fire. “Let’s say I took a lead,” sums up the veteran of the 19th Guards Fighter Aviation Regiment I.D. Gaidaenko, “I fired: one shell went higher, and the second, which should have hit, flies so late that it passes lower. Of course, if you hit from it, then there is no chance for the enemy, but it was extremely difficult to hit”482. It was no easier to do this for the pilot of the Yak-9T. The most powerful NS-37 had such a recoil force that it was possible to accurately fire one or two, maximum three shells out of 30 - and then the aiming on the bouncing "hawk" was lost so much that it was necessary to aim again"83. As a result, after the military tests of this fighter, it was recognized that “it is advisable to arm units with flight personnel who are fluent in aircraft with Yak-9T aircraft.

aerial shooting"484. And there were clearly only a few of these in the Soviet Air Force then ...

In addition, in 1943 the firepower of the German fighter aircraft also increased. True, the displacement, starting in July, of the B{E109ÿ-2 and S-4 aircraft by the B{1090-6 aircraft, on which both 7.92-mm MO 17 machine guns were replaced by two large-caliber, 13.1-mm MS131 with a common firing pin a plectrum of 600 rounds (versus 300 for the Yak-7b and 220 for the Yak-1, Yak-9, Yak-9D and LaGG-3)485 did not bring superiority in firepower over Soviet fighters to the Messers. The fact is that in terms of power (this value is the product of the kinetic energy of the bullet and the rate of fire), the MC131 was more than one and a half times inferior to the UBS (140 kW versus 237), its 36-gram bullets had almost half the kinetic energy (9. 84 kJ versus 17.75) than 48-gram bullets UBS"86. This means that in terms of destructive action, two MS 131s were almost equivalent to one UBS - which, along with ShVAK, was on the Yak-1, Yak-9, Yak-9D and LaGG-3. However, taking into account the greater power of the MC151/20 gun (466 kJ versus 410487) compared to the ShVAK, the total power of the onboard weapon Vÿ109S-6 turned out to be slightly more than that of the Yak-1, Yak-9, Yak-9D and LaGG- 3 (that is, about a third of Soviet fighters) - 746 kJ against 647. In other words, without reaching the level of the Yak-7b and La-5 (the total power of the airborne weapons of which was 884 and 820 kJ, respectively), the Messerschmitts nevertheless, they regained approximate equality in terms of firepower with at least a third of the Soviet "hawks" - lost by them in the spring of the 43rd.

And some of the new "Gustavs" here were undoubtedly inferior to both the Yak-76 and the "Lavochkins". These were "gunboats" ÿ{109ÿ-6/ÿ6 with three 20-mm cannons instead of one and ÿÿ109ÿ-6/09-448% with a 30-mm MK108 cannon and two ÿÿ131. In terms of the damaging effect of shells, the MK108 was practically not inferior to the Soviet NS-37, but, unlike the latter, it did not shoot down (see below) the aiming after the very first shots.

Simultaneously with B1109S-6, in July 1943, E \! 190A-6 appeared on the Soviet German front, on which, unlike modifications A-3, A-4 and A-5, both MCEE guns

were replaced by MO 151/20, faster-firing and providing better accuracy of fire - the total number of which on the new "Fokker" thus reached four. Their total ammunition consisted of 750 shells!

And, finally, in 1943, in the aircraft fleet of the German fighter aviation of the Eastern Front, as already noted, the proportion of heavily armed "killers" increased sharply -

Shrikes E \ / 190 (cars of modifications A-4, A-5 and A-6). Let's think about it: about 40% of all Luftwaffe fighters on the Soviet-German front in 1943 were aircraft with four 20-mm cannons and an ammunition load of 620-750 shells - at least 8,096,490 of the Avsoviet fighter aviation fleet then accounted for machines with one or two (k also less effective than the German ones) with 20-mm cannons and an ammunition load of 130-400 shells! (Taking into account and. machine gun armament does not practically reduce this contrast.) |

Of the rest of the German fighters on the Eastern Front, by the end of 1943, about 10% more (ÿ{109ÿ-6/ÿÿÿ ÿ#109ÿ-6/04) were also superior in firepower to the majority of the Soviet ones and were not inferior to the minority ("Aerokobram" and Yak -9T), but about 50% ("regular" ÿ#109ÿ-6) were not inferior to only about a third of Soviet fighters. Thus, in the second half of 1943, the German fighter aviation in terms of firepower achieved an approximate parity with the Soviet one.

It was also maintained throughout 1944, when the proportion of E\!190 fighters opposing the Soviet Air Force decreased. The Focke-Wulfs, with their heavy weapons, were primarily required by the air defense of Germany, which was opposed by armadas of huge four-engine bombers. Therefore, from March until the end of 1944, out of 10-12 Luftwaffe fighter groups operating on the Soviet-German front, only 21/, -41/, (Ti P groups of the 54th fighter squadron and headquarters detachment 51 th, in July - August also GU group 54th and III group 11th), i.e. 20-33%. The rest fought on

BE109 (-6) and B # 109 (-14), which did not differ from them in terms of armament. However, by the end of the year, among these "Messerschmitts" the proportion of vehicles equipped with a 30-mm MK108 gun instead of a 20-mm cannon increased.

The firepower of the Soviet "hawks" in 1944 practically did not progress. Of the new types of La-7 this year, they were armed with the same two ShVAK guns as the former Lavochkins, the Yak-3 (except for the first 200 vehicles) and the Yak-9U - the same one ShVAK and two UBS as those discontinued Yak-76b (moreover, if the latter had 130 shells in the ammunition load, then the Yak-3 had 120491), and the first 200 Yakovlev-3s had only one ShVAK and one UBS * 2. And the cessation of the production of the Yak-1 and LaGG-3 was accompanied by a sharp expansion in the production of the Yak-9M, Yak-9D and Yak-9DD - which also had, in addition to the ShVAK gun, only one UBS. Knowing how the combat losses of the Red Army Air Force fighters were distributed by type in 1944, and taking into account the greater combat survivability of the Lavochkins and Airacobras compared to the Yakovlevs, we can conclude that among those used by the Soviet Air Forces in 1944.

fighter machine:

- with one 20 mm cannon and one 12.7 mm machine gun (Yak-1, Yak-9D, Yak-9EDD, Yak-9M, LaGG-3 and part of the Yak-3) accounted for approximately 35%;

- with one 20-mm cannon and two 12.7-mm machine guns (Yak-76, Yak-9U and most Yak-3) - approximately 8%;

- with two 20-mm guns (La-5, La-5FN and La-7) - approximately 35% and

- with one 37-mm cannon and one - two 12.7-mm machine guns (Yak-9T and "Aircobra") - approximately 209%433.

Thus, about 35% of the Soviet “hawks” of 1944 (most of the “yaks” and “laggies”) were not inferior in firepower to about half of the then German fighters of the Eastern Front (“Messers” with a 20-mm cannon), but inferior to the other half ("Messeram" with one 30-mm or three 20-mm guns). About 45% more (Lavochkins, Yak-76, Yak-9U and most Yak-3) outnumbered one by half, but still inferior to the other. And only about 20% (Yak-9T and Aerocobras), exceeding one half, do not

German cars were not inferior to the other. Accordingly, of the German fighters, about half were not inferior in firepower to about 35% of the Soviet ones and inferior to the rest 65%. The other half outperformed about 80% of Soviet machines and was not inferior to the remaining 20%. Taking into account the error in the calculations, we can assume that there was an approximate equality, that the chances of encountering a stronger armed enemy in the air for Soviet and German fighters in 1944 were approximately the same.

In drawing this conclusion, we proceed, in particular, from the fact that the Yak-9T and the Aerocobra cannot be considered more effectively armed than the E\!190 and VP O9 with a 30 mm MK108 cannon and two 13.1 mm MC131 machine guns. Of course, the damaging effect of the 735-gram shells of the NS-37 gun and the 650-gram shells of the American M4 gun should have been greater than that of the 330-gram shells of the MK108-31 gun (not to mention the MS 151/20 ammunition). However, one should take into account the significantly lower rate of fire of the Soviet and American guns (respectively 250 and 180 rounds per minute versus 660-850 for the MK108 and 700-900 for the MS 1151/2045), due to which, in particular, the weight of a second Fokker salvo in 1944 was on average twice as large as that of the Yak-9T. If the latter had 3.74 kg, then E \! 190A-5 - 5.45 kg, E \! 190A-6 - 7.02 kg, and appeared in the summer of 44th E \ / 190A-8 with 13.1 mm MO 131 machine guns instead of 7.92 mm MS17 - 7.69 kg496. And most importantly, we must not forget about the impossibility of aimed fire from the NS-37 with bursts of more than three shells! It was much easier to hit the target from the MK108 (not to mention the lighter MO 151/20):

Due to the significantly lower recoil force, this gun made it possible to keep the enemy aircraft in sight during firing until the ammunition load was completely used up (which, moreover, was twice as large as that of the NS-37 and M4 - 60 shells against 30)497.

Yes, in fact, the damaging effect of 30-mm German shells equipped with hexogenic explosives was not enough for the result of their hit to be the same as that of the 37-mm Soviet ones. For example, Lieutenant G.I. German from the 42nd Fighter Aviation Regiment of the 240th Fighter

of the 6th Air Army of the North-Western Front in the battles over the Demyansky bridgehead twice - on February 17 and 18, 1943 - observed how bursts of a 37-mm cannon and a Yak-76 machine gun “knocked off” the E \! 190 plane. But in the same way, the wing of the attacked fighter was cut off by a short burst from the 30-mm cannon B # 109C, fired on February 20, 1945 in the battle in the Sendehelyi region (Hungary) against the Yak-9 by Captain L. Pottiongy from the 8th detachment of the 101st fighter regiment of the Hungarian Air Force; “almost the entire right wing” was torn off from the “yak”, which was hit on October 27, 1944 in the area of the Hungarian village of Bød Szent-Mihaly from a 30-mm cannon by Captain V. Lipfert from the P group of the 52nd Luftwaffe Fighter Squadron. Apparently, the 30-mm cannon was also on the “Messer”, which shot down on February 16, 1945 north of Bromberg (now Bydgoszcz in Northern Poland) the Yak-9T of Senior Lieutenant N.I. Ivanov from the 149th Fighter Aviation Regiment 323 th fighter. air divisions of the 4th Air Army of the 2nd Belorussian Front; Leaving the plane, the Soviet pilot “managed to see that the plane had been chopped off”...^93 Much has been written in our literature that an enemy aircraft fell apart when hit by an NS-37 cannon projectile, but this is an exaggeration. Indicative, in our opinion, is a phrase from the memoirs of V.A. Kanishchev about the battle conducted by him - the pilot of the 86th Guards Fighter Aviation Regiment of the 240th Fighter Aviation Division of the 3rd Air Army of the Kalinin Front - September 4, 1943 south of Dukhovshchina in the Smolensk region with dive bombers L187. “I flew on the Yak-9T, and now I, probably, put three 37-mm shells into it! There is a German in the air, of course [emphasis mine. - A.S.], did not crumble, but I saw how it fell off the cover and collapsed to the ground. On the other hand, here is the result of at least one of the cases when 30-mm German shells hit such a very tenacious aircraft as the Il-2. “Before that, I had never seen anything like this happen to the Il-2,” writes the same V. Lipfert, recalling the battle with Soviet attack aircraft on October 23, 1944 in the Szolnok region in Hungary. - [“Il”. - A.S.] shattered into pieces in the air. [...| First, a lot flew back to me

a bunch of small pieces, and then four large pieces, probably the engine, wings and tail. [...| For a few seconds I flew through a shower of debris"?11.

A hit by a 37-mm projectile from the American M4 cannon, by no means in the majority of cases (as we write) led to the destruction of an enemy aircraft in the air. Judging by the recollections of Soviet pilots that were not "combed" by censorship, such cases were generally rare! So, F.F. Arkhipenko, describing in the 90s. the victories won by him on the "Aircobra" in the 129th Guards Aviation Regiment, such an effect is never mentioned. The planes hit by his fire - whether they were Henschel H $ 129, E \! 190 or Bÿ109 attack aircraft - began, according to his description, to smoke, caught fire, fell - but did not fall apart in the air`0!. But Fedor Fedorovich each time fired not only from machine guns, but also from a cannon: on his "cobra" the trigger of all weapons was brought to one trigger! Three of the five former pilots of the Soviet Airacobras, whose memoirs were recorded (and published by A.V. Drabkin) at the beginning of the 20th century, do not report a single case of falling apart of an aircraft hit by M4 fire. - brother-soldier Archipenko S.3. Buk chin, I.D. Gaydaenko from the 19th Guards Fighter Aviation Regiment and B.A. Shugaev from the 66th Fighter. Only N. G. Golodnikov from the 2nd Guards Fighter Aviation Regiment of the Navy Air Force and B.S. Dementeev from the 101st Guards Fighter Aviation Regiment give one such case each - and even then the Fokker and Messer appearing in them fell apart from hits not from one, but from two or three shells. (By the way, V. Lipfert also wrote that from the hits of 30-mm shells of the MK108 gun that was on his Messerschmitt in late 1944 - early 1945, the Soviet fighter "blew apart" ... 502) At the same time, in Dementeev's memoirs describing dogfights in more detail than the other four pilots, this single case accounts for six when hits from the M4 led to the fact that the struck E\!190 or BE109 went into a dive, began to smoke, fell due to the death of the pilot or destruction of the engine, in extreme cases, lost a wing - but on

parts did not fall apart "? 03. And these are fighters! And the La87 of the famous H.U. mm shells! This evidence of Rudel's memoirs looks incredible, but a similar fact is also reported in the official report of this pilot about the battle with Soviet fighters in the Yass region on May 31, 1944. After landing, it is indicated there, "the entire Junkers" looked like sieve made by 20- and 37-mm shells"204.

And at the beginning of 1945, the German fighter aviation, perhaps even returned the superiority it lost in 1943

walking in firepower! The January breakthrough of the Red Army to the Oder forced the Germans to throw part of the Luftwaffe forces against the Soviet Air Force, which had previously opposed the Anglo-American aviation. As a result, among the German fighters operating on the Soviet-German front, there were again relatively many Focke-Wulfs - and not only the new E \ / 190) 0-9, which, in addition to two 13.1 mm MS 131 machine guns, had only two 20 mm MS151/20 cannons, but also four-gun E\!190A-8. (However, in terms of firepower, the Dora was second only to the Aerocobras and the Yak-9T; we also note that the rounds for two large-caliber bullets E\! UBS and 340 on the Yak-9U565.) And among the "Messerschmitts" there were more vehicles with a 30-mm cannon than before: in contrast to the Bÿ109S, the new B1109K-4. were already armed predominantly.

True, in the USSR they launched the production of La-7 with three 20-mm B-20 guns instead of two ShVAKs. But this happened only in March 1945, and the three-gun "Lavochkins" probably did not have time to take part in the hostilities (by the way, the B-20 cannon - also converted from a heavy machine gun (UB) - neither in terms of the weight of the projectile, nor in terms of its initial speed , did not differ in rate of fire from the inferior ShVAK5%6).

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Thus, during the first one and a half years of the Great Patriotic War, German fighters in their mass surpassed Soviet ones in terms of fire power, and during the last one and a half years they were not inferior to them in this indicator, i.e. on average during the war, they more often had an advantage here than the Soviet "hawks". In addition, throughout the war, it was easier for the Germans to realize the firepower of their fighter because of their superior quality of sights. On the Soviet "hawks" until 1943 there were UPS-1 collimator sights, it was very difficult to look at the "dull, barely noticeable marks on the sight glass", and on the 43rd, desperate to ensure the high quality of these devices, they put on fighters " primitive ring sights VV-1 (“air sight”), which was a wire frame with a crosshair, mounted above the dashboard, and a front sight on the hood. Such devices were used by aviators in the First World War, but even then optical sights began to supplant them”597. In general, sums up A.E. Shvarev, “our sights were useless”, we “suffered until the very end of the war that we didn’t have a sight” (“The sight was uncomfortable,” confirms L. 3. Maslov, who fought from the end of 1943 in 31- m fighter) 508. Good collimator sights had only English and American cars - "Hurricanes", "Tomahawks", "Kittyhawks" and "Aircobras"

German fighter pilots "used the convenience

Keu collimator sights! with good optics, which greatly facilitated their combat work "(in a collimator sight "the illuminated reticle and the target are seen equally sharply", and it is not required to sight the target as accurately as in a frame sight)503.,

Vitality

The fact that German fighters, on average during the war, more often had an advantage in firepower over Soviet ones than Soviet ones over German ones, was exacerbated.

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less than the German survivability of most Soviet "hawks", i.e. their ability to withstand bullets and projectiles. The main reason for this was the widespread use of wood and fabric in the construction of red star machines. Of all the fighters used by the Soviet Air Force during the war years, only the American Airacobras, Kittyhawks, and Tomahawks were all-metal. The I-16 had an all-wood fuselage, and a significant part of its wing skin was made of linen; the I-153 had linen covering not only of the wing consoles, but also of the tail section of the fuselage. This latter communicated with canvas on Hurricanes and, along with plywood, on most Yaks (on the Yak-3 and Yak-9U, plywood was everywhere instead of canvas). At the same time, the wing of the “yaks” throughout the war had plywood sheathing and wooden ribs, au Yak-1 and “Yakovlev-7”, where not only ribs were made of pine, but also spars (i.e. the entire power set of the wing) , it was generally solid wood. All-wood were the wing consoles and the rear fuselage of the MiG-3, ay LaGG-3, La-5 and La-5FN - the entire wing and the entire fuselage. La-7 (as well as La-5FN of the latest series) had almost the same all-wood construction: metal - except, of course, hoods, flaps, landing gear shields and frames of rudders and ailerons - they had only wing spars.

The difference in the survivability of wooden and metal structures is clearly visible, for example, from the memoirs of the former pilot of the 210th assault aviation regiment G.F. Sivkov. “If the Oerlikon projectile [20-mm anti-aircraft gun. - A.S.] hit, - he writes, - in IL-2 with a metal wing, he made a hole up to 200 mm with torn edges. The aircraft continued to fly quietly. If such a projectile hit a wooden wing, up to 30% of the skin was destroyed and immediately arose [due to a decrease in the ability of the leaky wing to create lift. - A.S.] a strong roll. It was difficult to keep the car in level flight»>!10. This is the Il-2 attack aircraft, and the smaller “hawk” often lost such a part of the plywood wing skin from the hit of a 20-mm projectile that it destroyed

hovering in the air>!! (after all, the skin on the aircraft of the Second World War was working, i.e. it took part of the loads experienced by the wing). ‹<[...| If a high-explosive fragmentation projectile hit the yak, - testifies I.I. Kozhemyako from the 867th (later - the 107th Guards) Fighter Aviation Regiment, - then it was bad - the plywood simply flew apart, the holes turned out to be gigantic. Even if the fighter did not catch fire, you still had to jump - you can't fly without skin." Once, continues Ivano HIV, "Messer" "as he hit, my whole wing" opened up ". Only chips flew in all directions! The gas tank protector flew in pieces! The skin was literally ripped off the wing, the tanks became visible…"512 Further, if a metal spar sometimes withstood hits even by large-caliber bullets, then a pine spar used to split 7.92-mm ones as well. In the end, the analysis of "numerous facts" of this kind prompted the Soviet leadership to decide on the transition to the construction of exclusively all-metal aircraft5!3. But this came true after the war...

"When incendiary shells hit," D.B. Khazanov adds, "the wood that formed the basis of the design of our machines" "often caught fire in the air"514. However, the fire hazard, perhaps, was not a specific drawback of the wooden structure. V. Shvabedis sen points out that the Soviet fighters of 1944-1945. - for the most part wooden or semi-wooden - "it was difficult to set fire to"> 15; it is also known that the all-wood LaGG-3 caught fire much less frequently than the Yak-1 with a metal fuselage frame and a metal lining of the middle part of the fuselage. ‹|...| Sometimes you fly up to Voronezh," recalls F.F. and LaGG-3 burned badly and for this reason won the sympathy of the pilots. The degree of fire hazard of fighters was determined, apparently, all the same, mainly by how protected the fuel tanks were from ignition. LaGG-3 therefore burned badly,

that already in 1941 it was equipped with a neutral gas system - which filled the gas tanks as the fuel ran out (and then the aircraft compartments) and prevented the ignition of gasoline vapors when a bullet or projectile hit. And the Yak-1 received such a system only in September 1942 ... Well, av 1944-1945. all Yakovlevs and Lavochkins were already equipped with a neutral gas system.

The absence of any kind of protection for gas tanks led to a particularly low survivability of the Soviet "yast-

Rebkov" of the beginning of the war - I-16, I-153 and MiG-3. Not to mention the absence of a neutral gas system, on the donkeys produced before the second half of 1939, and on the first series of MiGs, the tanks were not even protected - so that the holes in them could not self-tighten, preventing the spread of gasoline and his steam on the plane. And on the rest, the gas tank protector was, it seems, just as unsatisfactory as on the I-16s that fought in the summer of 1939 at Khalkhin Gol - on which it did not close the holes at all. After all, as the pilots of the 54th Luftwaffe Fighter Squadron noted, in order to set fire to the 41st I-153, it was enough “a few shots on the sides”, the I-16 “flammed easily when fired from above and from the side”, and the MiG 3 "easy" - even lighter than the Yak-1 - "caught fire during shelling from all angles"> 17.

Back in 1942, actually unprotected gas tanks were on the Yak-1 and Yak-76; their protector also “did not have the proper covering properties and did not prevent the flow of gasoline from the gas tanks”?! “And, most importantly, something needs to be done with the tanks,” the commander of the 288th Fighter Aviation Division of the 8th Air Army of the South-Eastern Front reported to the Deputy Head of the Aviation Department of the Central Committee of the All-Union Communist Party of Bolsheviks N.S. Shimanov in September 1942 lieutenant colonel S.F. Konovalov. “A fire in the air of the Yak-7 occurs literally from a single bullet hit […]>519.

The fire hazard of Soviet fighters for a long time was also increased by the lack of internal sealing. The drafts that roamed inside the aircraft with unpressurized compartments allowed the flames to instantly

rush, for example, from the wing into the cockpit - and cover the entire machine in a short time. And meanwhile, as already noted, on the "Yakovlev" partitions in the fuselage began to be installed only at the beginning of 1943, and from the "shop" only La-7 received internal sealing in the middle of 1944 ...

German fighters from the very beginning had both internal sealing and sealed gas tanks. True, to some extent this was neutralized by the absence of a neutral gas system, and also by the fact that 45% of the skin of this aircraft was made of alloys with a high content of flammable magnesium>29. But almost all German fighters had an all-metal construction! Only the Messerschmitts, produced since the middle of 1944 - BE109 (-14, most of the B # 109C-10 and K-4 and the latest series of BE109C-6 - the tail section of the fuselage was wooden: metal in Germany However, in these machines, the percentage of wood in the design was less than in any Soviet-made fighter.

And the survivability of E \! 190 aircraft, both German pilots and Soviet specialists, was recognized as having no analogues at all! Not only that, the Fokkers were equipped with an air-cooled star-shaped engine - incomparably more tenacious than the in-line water-cooled engines that were on the Messerschmitts, Yaks and Laggs. The latter could jam as a result of one bullet hit in the water radiator - and the Fokker engine did not stop working even after the destruction of one or even two cylinders. As you know, air-cooled "stars" were also installed on many Soviet fighters - I-16, I-153 and Lavochkin. But, unlike these latter, E\!190 also had the most durable - significantly reinforced in comparison with Bÿ109 - all-metal construction. As a result, as Soviet experts calculated in 1944, 81% of the attacks by the Soviet "hawks" of E\!190 aircraft ended in vain??!, i.e. did not lead to the downing of the Fokker even if it was hit. And, as already noted, to catch the enemy in sight again

in air combat it was extremely difficult ... It is characteristic that after the military tests of the La-7 aircraft, which took place in September - October 1944 in the 63rd Guards Fighter Aviation Regiment of the 3rd Guards Fighter Aviation Division of the 3rd Air Army, the 1st On the Baltic front, the pilots noted the insufficiency of even such powerful, by Soviet standards, weapons as two 20-mm ShVAK? 22 cannons. L.3. Maslov, who fought on the Lavochkins in the 31st Fighter Regiment, even now claims that “the firepower of two guns was enough for air combat”\u003e 23, but the enemy, whom the pilots met in the fall of the 44th in the sky of Lithuania and Courland 63rd Guards, were almost exclusively E \! 190 (from the 54th fighter, 3rd and 4th assault and headquarters detachment of the 51st fighter squadron)! If the power of even two ShVAK “Lavochkins” was not enough to fight them, then what can we say about “yaks” and “lags” with one ShVAK and one UBS? Is it a coincidence that V.A.Tikhomirov is the only one of all front-line pilots whose memoirs recorded in our days from A.V.Drabkin! - considers “weak” even the armament of the Yak-76524 (which, we recall, in terms of firepower, surpassed not only all the “yaks”, except for the Yak-3, Yak-9T and Yak-9U, but also the two-gun “shops”)? 12th Fighter Aviation Regiment of the Air Force of the Baltic Fleet, in which he fought at the end of 1943-1945. Vladimir Alekseevich, and near Leningrad, and in the Baltic states, and in East and West Prussia, he mainly encountered E\\190 ...

Of course, more perfect: the material part in itself does not guarantee victory in air combat. Let us recall the truth well known to aviation specialists, according to which, in an overly, perhaps, categorical formulation of one of the domestic test pilots, “the best fighter is the one that pilots

ruet the best pilot»>?5. For example, on October 2, 1942, in the region of Stalingrad, the most productive Luftwaffe ace at that time, Captain G. Graf from the III group of the 52nd fighter squadron, fighting on B # E109C-2, could not

fly in maneuverable combat, seemingly clumsy at low altitudes of the MiG-3. “The current opinion that the “moment” is worse than B#109, this Russian brilliantly refutes,” Graf described his impressions. “I am convinced once again that the high skill of the pilot always minimizes the superiority of the enemy in technology”526. And Guards Captain F.F. Arkhipenko from the 129th Guards Fighter Aviation Regiment of the 205th Fighter Aviation Division in July 1944, during the Lvov-Sandomierz operation, had to join the battle with the Airacobra in the Lvov region against the one who attacked him by mistake a pair of Yak-3s from the 91st Fighter Aviation Regiment of the 256th Fighter Aviation Division of the same 2nd Air Army of the 1st Ukrainian Front. And although the Cobra was inferior to the Yak-3 both in horizontal and vertical maneuverability, and the fight took place both on turns and on verticals, Archipenko eventually managed to get into the tail of the super-maneuverable Yak! After all, the captain of the guard served in fighter aviation since 1940, MASTERED AND "strict" I-16, and the "oak" LaGG-3, and the insidious "Aero Cobra", and I-153, iYak-1, iYak-76 - fought on June 22, 1941. And the “yaks” were clearly piloted by newcomers who, before the start of the Lvov-Sandomierz operation, had not made a single sortie and who in the 91st regiment then numbered about 40% of the flight personnel ?? 7 (actually, in This is already convinced by the very mistake with the attack of their own aircraft - a mistake that the Yak-3 pilots could not realize even during a rather long battle) ...

Or one more example. La-5FN of 1943 release could not overtake B#1090-6, but experienced pilots of the 5th Guards Fighter Aviation Regiment in October 1943, during the battle for the Dnieper, began to achieve superiority over the "Messers" in height in order to gain then dive speed. And, recalls G.A. Baevsky, a participant in these battles, “where did the seemingly high speed of the Messerschmitts go?”528

An experienced pilot could also compensate for the shortcomings of the armament of his aircraft - bringing the car to a minimum distance from the enemy and thereby minimizing insufficient firepower, aiming error, and dispersion of bullets and projectiles. For example, if the pilot

"Aircobras" - whose M4 cannon had a low rate of fire and poor flatness - fired from a short distance (50-70 m), then the shells did not have time to deviate from the direct flight path, but, on the contrary, managed to hit the target

hit not only the first projectile, but the whole queue. But in order to get close to the enemy aircraft, one had to have endurance and skills in maneuvering, which only experience gives! G.V. Krivosheev from the 31st Guards Fighter Aviation Regiment considers the firepower of even the most poorly armed "yaks" (Yak-1 and Yak-9) to be quite sufficient - but, he adds, "if you know how to aim and do not open fire with 800 meters, as many beginners did [...|". K.G. Zvonarev from the 814th (later the 106th Guards) Fighter Division also agrees with Krivosheev: "The firepower of all the Yaks is sufficient." But this pilot also knew how to get close to the enemy at a minimum distance: "When you come at point-blank range, then you already shoot" ... Characteristic are the answers of I.I. doubts of the interviewer about the sufficiency of armament of the Yak-1] and Yak-9: "Do you think that plane needs a lot? One shell in the oil tank, and you're done! After 3-4 minutes, the engine will fail. That's downed." Or "one shell into the cockpit of the Messer" - and consider that you shot down [because he killed the pilot. — A.S.|». "You just have to go in the right way and get in the right way. [...|] You have to know how to shoot! [emphasis added by me. — A.S.]". The opinion of N.G. Golodnikov, a veteran of the 2nd Guards Fighter Aviation Regiment of the Navy Air Force, is just as unambiguous: "Is the armament weak? If you know how to shoot, then two points are quite enough (I already know, I myself on the R-40 got by with two large-caliber machine guns), but if you don't know how to shoot, you'll miss five, like the "Messer" ... 529

But, as was shown in the fourth section of this chapter, the Soviet Air Force differed from the Luftwaffe in that the training of the bulk of the pilots in them throughout the war was very weak! "The Russians were for the most part rather average pilots," for example, G. Rall, who fought on the Eastern Front, in the 3rd group of the 52nd Fighter Squadron, from June 1941 to the spring of 1944, directly noted.

And only a few Soviet fighter pilots could compensate for the shortcomings of their, as a rule, inferior to the German aircraft with their flying, tactical and shooting skills. Therefore, the imperfection of the material part should be recognized as another factor that caused the lower efficiency of the combat work of the Soviet fighter aircraft in comparison with the German one.

6. CONCLUSION

So, the immediate reasons for the lower efficiency of the combat work of the Soviet fighter aviation in comparison with the German one were:

a) less effective compared to German principles

principles for the use of fighter aircraft, which:

- provided a lower probability of meeting with an air enemy (and, therefore, a lower probability of winning an air victory or at least preventing the enemy from completing a combat mission),

- deprived Soviet fighters of initiative in air combat and

— demanded to have an exorbitant number of exterminators;

6) the commitment of the majority of Soviet fighter pilots to less effective than German air combat tactics, which:

- complicated the capture by Soviet fighters of the initiative in the 60s and

- more often substituted them under the blows of the enemy than non-Metsky ones; |

c) low professionalism of the Soviet aviation command in comparison with the German one;

d) the low level of training compared to the German level of training of the bulk of Soviet pilots - both fighters and bombers and attack aircraft (that is, potential victims of fighter aircraft) and

e) preserved until 1945 (and not until 1942 or 1943, as was commonly believed in Soviet literature)

the movement of the bulk (and until the summer of 1944 - all) of German fighters over the bulk, and until the summer of 1944 - over all Soviet fighters according to a set of combat characteristics:

- speed,

- rate of climb,

- vertical maneuverability,

- firepower

— equipment with means of communication and.

- survivability.

It is impossible not to note in this connection the absolute erroneousness of our ideas about the flight data of the German Focke-Wulf E190 fighter to this day. Contrary to the cliches of Russian literature, this ridiculed

our aircraft, which was “clumsy” and “low maneuverable”, surpassed almost all types of Soviet fighters not only in speed, but also in vertical maneuverability - and was not inferior in horizontal maneuverability! The decrease in the number of E\!190s on the Soviet-German front in 1944 is not explained by their alleged unsuitability for combat with "light" and "maneuverable" Soviet fighters, but by the fact that these exceptionally survivable and exceptionally heavily armed vehicles were needed first of all, in the air defense of Germany, which fought against armadas of extremely tenacious and heavily armed heavy bombers. In order to saturate the air units of the Eastern Front with E \ / 190 fighters, the capacities of the German aviation industry were no longer enough ... 1944, fighting on the Soviet-German front [and the Shgroup of the 51st fighter squadron from E \! 190 to B1109, most pilots perceived Lee “negatively”: “the best fighters (“Focke-Wulfs”) are sent to the West, there is an all-out weakening of the Eastern Front?>31.

It is important to note that the factors listed above, intertwined, intensified the negative impact of each other. So, the poor training of most Soviet pilots

fighters and their vehicles' lack of superiority over the enemy in speed, rate of climb, and vertical maneuverability made it difficult to master advanced air combat tactics—sudden attacks in the vertical plane. The advantage of the Germans in tactics was also aggravated by the absence until 1943-1944. on most Soviet fighters, full-fledged (or even any kind of) radio communication - which did not allow for the interaction of individual aircraft and groups. The lack of radio communication did not allow the rational use of fighter aircraft in the German way. Instead of using radio guidance from the ground to send fighters only to those areas where an air enemy appeared, it was necessary "just in case" to send a mass of "hawks" to almost all corners of the airspace above the front line, i.e. e. disperse forces and deploy an unreasonable number of fighters - wasting material and technical resources and increasing the number of potential air targets for German fighters. And when the guidance of fighters by radio was finally more or less established, the irrational use of fighters described above continued due to the low professional level of the Soviet aviation command!

During the course of the war, the effectiveness of Soviet fighter aircraft - as the Germans also admit - steadily increased. However, the baseline was so low that

The influence of all the above factors continued - albeit to a lesser extent - until the end of the war.

The root cause of the lower efficiency of Soviet fighter aviation in comparison with the German one should be recognized as the general industrial, technical and cultural backwardness of the USSR in comparison with Germany. It is known, for example, that the lag behind Soviet fighters from German ones in speed, rate of climb, and vertical maneuverability was directly explained by:

a) the absence in the USSR of powerful and at the same time reliable aircraft engines;

6) the lack of automatic control of the propeller group on Soviet machines;

c) the shortage of aluminum in the USSR and the forced replacement of the latter in aircraft structures with wood (which made the structure heavier due to the lower specific strength of wood);

d) insufficient in comparison with the German technical completeness of the designs of Soviet fighters.

All this, in turn, was due to:

a) lack of sufficient experience in the creation of aircraft engines and automatic devices; |

6) lack of high-precision equipment at motor and instrument-making plants;

c) low culture of production in motor and instrumentation;

d) the late start of the development of non-ferrous metallurgy in the country;

e) the weakness of the scientific and experimental base of the Soviet aircraft industry in comparison with the German???2;

f) lower than the German level of organization of design and design activities and culture of aircraft design.

For example, if the Germans by the beginning of the 40s. were well aware of the importance that internal sealing has for increasing the speed of aircraft, then “in our country,” notes V.I. . When Soviet aircraft engineers studied the aircraft purchased in Germany in 1940, at first they could not understand at all why the Germans carefully sealed

rubber "every hatch, every opening" ... 533

Ultimately, everything rested on the shortage in the USSR of experienced scientific and engineering personnel, on the shortage of qualified workers, on the low technical culture of the population - due, in turn, to the low general culture of Soviet society.

In this low general culture, one should also look for the roots of the low professionalism of the Soviet aviation company.

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manding. Indeed, his commitment to inefficient, wasteful, but not sophisticated ways of using fighter aircraft, and tactical decisions that contradicted the basics of tactics and common sense - all this was due not so much to a lack of special knowledge, but to the anti-intellectualism inherent in many Soviet aviation commanders - unwillingness or inability to apply acquired knowledge in practice, to strain your thoughts, analyze the situation and look for solutions that are adequate to it. And this, in turn, was a natural consequence of the inadequacy of the general education they received, which only develops the habit of systematic mental work, analysis, reflection on newly received information in order to use it in their own interests, disciplines the mind and forms a culture thinking.

The lack of a culture of thinking that does not allow making superficial decisions, and, ultimately, the same lack of a common culture among the state and military leadership of the USSR should also explain the vicious system of training Soviet fighter pilots. After all, the preference here for quantity over quality is an example of a superficial approach to solving the problem of creating a strong fighter aircraft.

In view of all this, it is not surprising that the incomparably more numerous Soviet fighter aircraft, having lost 6 times more aircraft than the German one, shot down 2.5-3 times fewer aircraft than that one, and significantly hampered the actions of enemy strike aircraft, only by gaining a numerical superiority over the German one by an order of magnitude - but to the fact that she could generally fight against the German enemy. And the conquest of air supremacy by Soviet fighter aircraft in mid-1944 was, without a doubt, a victory for the economy of the USSR and its allies, a victory for the leaders of the USSR as organizers of the economy, but by no means a victory for Soviet military art or Soviet technology.

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113 Russian archive. The Great Patriotic War. T. 12(1). M., 1993. S. 118. -

114 Ibid. T. 13 (2-1). S. 267.

115 Damn Dozen of the Luftwaffe. S. 219.

116 Perov V.I., Rastrenin O.V. Assault aircraft of the Red Army. T.1.S. 17.

117 See: Ibid. pp. 16-17 (the number of the order is given by the authors with a misprint by KOY).

118 As of June 1, 1941, the combat air units of the Red Army Air Force and the Navy Air Force had about 9,000 fighters, including about 3,000 I-15Z and 2,424 I-16s with M-62 and M-63 engines (calculated according to: Perov V.I. , Rastrenin O. V. Red Army assault aviation. T. 1. S. 186-187; Maslov M. Fighter I-16. M., 1997. P. 33; Onzhe. I-153. M., 2001. C 41, the fact that M. Maslov gives information as of June 1, 1941, not June 22, is established by: On the issue of monographs // Aviamaster, 1997. No. 4-5.S. 53. Almost all of the 1319 I-15 bis fighters and part of the I-153 fighters in the combat units of the Red Army Air Force were part of the attack aviation regiments).

119 Golubev V.F. In the name of Leningrad. M. 2000. S. 14.

120 Shvabedissen V. Decree. op. P.72.

121 Ibid. pp. 69-71.

122 Ibid. pp. 74-77; Fedorov A.G. The sky was destiny. M., 1973. S. 51.

123 Golubev V.F. Decree. op. S. 138.

124 Schwabedissen V. Decree. op. S. 66.

125 Zhuravlev D.A. Fire shield of Moscow. M., 1988. S. 159.

126 Khazanov D.B. Unknown battle in the skies of Moscow. 1941-1942 defensive period. C: 82, 93-94.

127 Arkhipenko F.F. Notes of a fighter pilot. M., 1999. S. 94.

128 Khazanov D. Battle over Iasi. pp. 28-30.

29 Schwabedissen V. Decree. op. S. 66.

130 Ibid. S. 75.

131 Kazachkovsky O.D. Physicist at war. M., 1999. pp. 64-65.

132 Novikov A.A. In the sky of Leningrad // War, aviation, life... To the 100th anniversary of the Chief Marshal of Aviation A.A. Novikov. M., 2000. S. 190; Shvabedissen V. Decree. op. S. 70.

133 Schwabedissen V. Decree. op. pp. 74-75, 77; Novikov A.A. Decree. op. S. 175.

134 Perov V.I., Rastrenin O.V. Assault aircraft of the Red Army. T.1.S. 128; Aviation and Time. 1998. No. 3.

135 Tomorrow. 1997. No. 18 (179). .

136 Shakhurin A.I. Wings of Victory. M., 1985. S. 171-172.

137 Damn Dozen Aces of the Luftwaffe. S. 219.

138 Drabkin A. I fought with the Sasami of the Luftwaffe. S. 501.

139 Ibid. P.36.

140 Ibid. S. 426.

141 Ibid. pp. 80-82.

142 Ibid. S. 282.

143 Ibid. S. 427.

144Zefirov M.V., Degtev D.M., Bazhenov N.N. Swastika over the Volga. Luftwaffe against Stalin's air defense. M., 2007. S. 585.

145 Perov V.I., Rastrenin O.V. Assault aircraft of the Red Army. T.1.S. 125. yo

146 Ibid. ,

147 Drabkin A. Decree. op. S. 230.

148 Rastrenin O.Decree. op. S. 31.

149 Cit. by: Gorbach V. Decree. op. S. 59.

150 Ibid. pp. 196-197.

151 Schwabedissen V. Decree. op. pp. 162-163.

152 Ibid. pp. 169-170.

153 Ibid. S. 169.

154 Ibid. S. 172.

155 Op. by: Perov V.I., Rastrenin O.V. Assault aircraft of the Red Army. S. 126.

156 Op. by: There. pp. 126-127.

157 Op. by: Gorbach V. Decree. op. pp. 93, 94.

158 Cit. by: There. S. 243.

159 Ibid.

160 Cit. by: There. S. 363.

161 Op. by: There. S. 417.

162 Op. by: There. S. 449.

163 Soviet aces. M., 1996. S. 13; Perov V.I., Rastrenin O.V. Assault aviation of the Red Army. T. 1.S. 128-129.

164 Khazanov D. Battle over Iasi. S. 30.

165 Calculated according to: Ignatiev G.V. Decree. op. pp. 168-169 (information about the combat work of the flight personnel of the regiment on September 1, 1944). The approximation of our figures is explained by the fact that in

The report published by G.V. Ignatiev contains only data on the total flight time and the flight time during combat missions. However, all the young pilots of the 900th Regiment during the period of hostilities from June 23 to August 31, 1944 also made non-combat sorties, if only because the regiment flew six times to new airfields during this time. Already in the process of this redeployment, the youth had to fly in about 3-4 hours. Therefore, in order to establish the value of the total flight time of young pilots by the beginning of combat work, from the figure of their total flight time on September 1, 1944, it is necessary to subtract not only the hours gained in combat missions from June 23 to August 31, but also at least 3-4 hours - so that the exact figure cannot be obtained (those given by us are rounded to the nearest tens).

166 Romanov V. Mezzegspint V1.109. M., 1994. P.21.

167 Litvin G. 55th Anniversary of the Battle of the Kuban // Aviation and Cosmonautics Yesterday, Today, Tomorrow... 1998. No. 4.ÿ.2.

168 Calculated according to: Ignatiev G.V. Decree. op. pp. 168-169 (see note 165 to this chapter), 246.

169 Toliver R.F., Constable T.J. Decree. op. P.212.

170 Drabkin A. I fought with aces of the Luftwaffe. S. 9, 198.

171 Op. by: Timofeev. B. Decree. op. S. 307.

172 Op. Quoted from: Khazanov D. Battle over the Yassy. S. 29.

173 Ignatiev G.V. Decree. op. S. 242 (memoirs of GB Chernyshenko).

174 Op. Quoted from: Khazanov D. Battle over Iasi. S. 29.

175 Johnson J.E. The best English ace. M. 2003. S. 44.

176 Op. Quoted from: Khazanov D. Battle over Iasi. S. 29.

177 Op. by: Timofeev A. V. Decree. op. S. 308.

178 Ignatiev G.V. Decree. op. S. 246. See also note. 165 to the present

_ chapter.

179 Drabkin A. I fought in a fighter. pp. 205-206.

180 Drabkin A. I fought with the Sasami of the Luftwaffe. S. 390.

181 Schwabedissen V. Decree. op. P.270.

182 Ibid. P.271.

183 Johnson J.E. Decree. op. S. 318.

184 Schwabedissen V. Decree. op. S. 267.

185 Ibid. P.275. |

186 Rudel H.U. Dive Pilot // Bombs Dropped! M., 2002. S. 158, 196.

187 Op. Quoted from: Rusetsky A. Focke-Wulf E\190A, E @.C.21.

188 Op. Quoted from: Khazanov D. Battle over Iasi. P.29.

189 Ibid.

190 Cited. by: SpeakM. Aces of the Luftwaffe. S. 139.

191 Archipenko F.F. Decree. op. S. 47.

192 Khazanov D. Battle over Iasi. S. 29.

193 Lipfertv. Decree. op. S. 108.

194 Shvabedissen V.Decree. op. P.273.

95 Lipfert V. Decree. op. P.209.

196 Drabkin A. I fought in a fighter. S. 303; He is. I fought with the ace of the Miluftwaffe. S. 432.

197tToliver R.F., Constable T.J. Decree. op. S. 212.

198 (//Vabedissen V. op. cit. p. 139.

199 See: Ibid. pp. 46, 66, 139, 164, 184, 240, 267.

200 Ibid. S. 160. See also S. 267.

201 Russian archive. The Great Patriotic War. T. 15 (4-4). S. 46.

202 Zefirov M.V. Aces of the Luftwaffe. Day fighters. T. |. S. 492.

203 ||it. by: SpeakM. Aces of the Luftwaffe. S. 289.

204 {42 June 1, 1941 in the combat units of the Red Army Air Force there were 6676I-1biI-153Zi 1062 I-15 bis (calculated according to: Perov V.I., Rastrenin O.V. Assault aviation of the Red Army. T. 1.S. 186-187), avVVSVMF - 499 I-16, more than 350 (no information on the Air Force of the Pacific Fleet) I-153Zi 145 I-15 bis (Maslov M. Fighter I-16. M., 1997. S. 33; Onzhe I-153.M., 2001. P. 41; Onge "BIS" in the war // MirAviation. 1994. No. 1.S. 15). If we assume - based on the relevant data on other fleets - that the Air Force of the Pacific Fleet had 120-130 I-153s at that time, and take into account that most of the I-15 bis and part of the I-153 in the Red Army Air Force were part of assault units, then the total number of I-16, I-153 and I-15 bis available in the combat units of the Soviet fighter aviation at the beginning of the war could be about 8000 vehicles.

205 Kondratiev V. Comparative analysis of designs and flight data of Soviet and German fighters that took part in the Great Patriotic War // Drabkin A. I fought on a fighter. M. 2007. S. 378; Maslov M.I-153.M.., 2001. S. 30, 31.

206 See: Medved A.N., Khazanov D.B. MiG-3. The first high-altitude front-line fighter. M., 2007. S. 15, 64; Kondratiev V. Comparative analysis of designs ... P. 413. According to other sources, the proportion of radio-equipped “migs” and “laggs” was significantly lower: V.I. Alekseenko indicates that in 1941 factories installed radio equipment only about 6.5% (for every 15th aircraft) MiG-3, LaGG-Zi Yak-1 (Alekseenko V.Soviet Air Forces on the eve and during the Great Patriotic War // Aviation and Cosmonautics yesterday, today, tomorrow ... 2000 No. 2.C.6).

207 Kuznetsov S. First Yak. M., 1995. S.23, 76, 1065.

208 Calculated according to: Beshanov V.V. Year 1942 - “training”. Mn., 2002. S. 306.

209 Medved A.N., Khazanov D.B. MiGG-3. S. 64; Kondratiev V. Comparative analysis of structures... P. 413, 416; Kuznetsov S. First Yak. S. 105; LeipnikD.L.Yak-9. Ordinary skies. Kyiv, 2000. S. 38. According to other

according to data, at first, transmitters were installed only on every tenth La-5 (Baevsky G.A. Decree. Op. P. 117).

210 Baevsky G.A. Decree. op. pp. 87, 116.

211 Alekseenko V. Soviet Air Forces on the Eve and During the Great Patriotic War // Aviation and Cosmonautics Yesterday, Today, Tomorrow... 2000. No. 2.ÿ.6; Novikov A.A. Decree. op. P.266-267.

212 Drabkin A. I fought in a fighter. S. 51.

213 Ibid. pp. 84, 338; He is. I fought with the aces of the Luftwaffe. pp. 88-89; Baevsky G.A. Decree. op. S. 87.

214 See: Shvabedissen V.Decree. op. pp. 166-167; Archipenko F.F. Decree. op. S. 68.

215 Op. Quoted from: Google Yu. Single-engine fighters 1930-1945. (Speed or maneuverability? Both speed and maneuverability!). Kyiv, 1998. S. 10.

216 Vakhlamov V. Sergey Dolgushin //World of Aviation. 1992. No. 1.S. 19; Aircraft building in the USSR. 1917-1945 Book. I. M., 1994. S. 181; Drabkin A. I fought with aces of the Luftwaffe. S. 208.

217 Kuznetsov S. Attention - fake! // World of Aviation. 2002. No. 1.S. 49.

218 Khazanov D. A long way to the front of the improved "nine" // History of Aviation. 2000. No. 2.S. 29.

219 Pavlov A. The most dangerous enemy // Aviamaster. 2002. No. 7. S. 47; Romanov V. Decree. op. P. 29: Maslov M. Fighter I-16. M., 1997. P. 77. The calculation of the specific gravity of various modifications of I-16 was made according to: Perov V.I., Rastrenin O.V. Assault aviation of the Red Army. T. 1. S. 186-187; Maslov M. Fighter I-16. P. 33 (the fact that M.A. Maslov gives information as of June 1, 1941, not June 1, 1941, is established by: On the issue of monographs // Aviamaster. 1997. No. 4-5. P. 53). The I-16 type 27 (38 copies produced in 1939-1940) fell short of one hundred 0.8%, the maximum speed of which could not be found.

220 See: Taras D. Bomber WinkKerz /i88. History, design, armament, combat use. M.; Mn. 2002, p. 43.

221 Khazanov D.B. Unknown battle in the skies of Moscow. 1941-1942 Counteroffensive. M., 2001. S. 136.

222 Maslov M.I-153. S. 73; Aircraft building in the USSR 1917-1945. Book. [. M., 1992. S. 134 (aircraft I-153 No. 6019, which developed 443 km / h in tests, is designated by M.A. Maslov in the table on p. 73 as

experienced, however, from the text on p. 12, as well as from the text of K.Yu. Not-111.M., 1996. S. 56.

223 Maslov M. I-15 bis - aircraft of five wars // World of Aviation. 1993. No. 1.S. 24; Gordon E., Zenkin V. Titov V.I-5, I-15, I-15 bis. Biplane fighters by N.N. Polikarpova. M., 1992. S. 51; Aircraft building of the USSR 1917-1945. Book. 1.C. 134.

224 Calculated from: Aircraft building in the USSR 1917-1945. Book. 1. S. 235-237.

225 Pavlov A. Decree. op. S. 47.

226 Calculated from: Ibid. P. 45. A. Pavlov himself gives the figure of 63.6% - however, the calculation of the share of Friedrichs (579 vehicles, according to A. Pavlov) in the total number of B! 109 in the combat fighter air units of the Eastern Frontan on June 22, 1941 A. Pavlovu) shows that they were 68.7%.

227 Ibid. S. 45.

228 Medved A.N., Khazanov D.B. MiGG-3. S. 45.

229 Compiled by: V. Alekseenko, M. Nikolsky. Lavochkin fighters in the Great Patriotic War // Aviation and Cosmonautics Yesterday, Today, Tomorrow ... 2000. No. 5-6. S. 30 (LaGG-3); Shavrov V.B. History of aircraft designs in the USSR. 1938-1950 (Materials of the history of aircraft construction). M., 1978. S. 210 (LaGG-3); Summer building itself in the USSR. 1917-1945 Book. I. S. 38, 79, 81 (Mig-3, LaGG-3); Kuznetsov S. First Yak. S. 63 (Yak-1); Kosminkov K.Yu. Yak-1. Difficult birth of the first child // Aviation and Time. 1995. No. 4. P. 49 (graph of the altitude and speed characteristics of the Yak-1); Sobolev D.A., Khazanov D.B. German trace in the history of domestic aviation. M., 2000. S. 179 (In OEE-1 and E-2); Romanov V. Decree. op. P. 29 (VM OEE-4).

230 Kosminkov K.Yu. Many-faced Yak-7 // Aviation and Time. 1996. No. 3. S. 37.

231 Compiled by: Pavlov A. Decree. op. P. 47 (LaGG-3, MiG-3, Yak-1, V+109E-4iE-2); Kosminkov K.Yu. Yak-1. The difficult birth of the first child. P. 49 (diagram of the altitude and speed characteristics of the Yak-1 issued in December 1941); Romanov V. Decree. op. S. 29 (B1109E-4); Google Yu Decree. op. S. 23 (B1109E-4). The upper limit of the values of the maximum speed of BE109E-4 at altitudes of 1000-3000 and 5000 m was calculated by us on the basis of the assumption that the speed of the specimen, whose data (near the ground and at an altitude of 4000 m) are given by V. Romanov, at all altitudes exceeds the speed of the instance , whose data (in the form of a graph of altitude-speed characteristics) are given by Yu.A.Gugley, at 9-10 km / h, which is near the ground and at an altitude of 4000 m.

232 Aircraft building in the USSR 1917-1945. Book. 11. S. 79; Alekseenko V., Nikolsky M. Decree. op. S. 30; Shavrov V.B. Decree. op. S. 210.

233 Compiled by: Pavlov A. Decree. op. S. 47 (all machines, except

B+109E-4); Romanov V. Decree. op. S. 29 (B1109E-4).

234 Only A.E. Shvarev - citing a case from his own practice, relating to August or September 1941, when his 236th Fighter Aviation Regiment fought in the Smolensk direction - claims that the Yak-1 "on a dive can catch up with the Messer" (Drabkin A. I fought in a fighter. S. 72).

235 Op. by: Google Yu. Decree. op. S. 15.

236 Compiled by: Alekseenko V., Nikolsky M. Decree. op. S. 30 (LaGG-3); Shavrov V.B. Decree. op. S. 210 (LaGG-3); Aircraft building of the USSR. 1917-1945 Book. P.S. 38, 168, 176 (MigG-3; Soviet engines); Kuznetsov S. First Yak. S. 63 (Yak-1); Pavlov A. Decree. op. S. 47 (B1109E-4, E-1TuE-2); Romanov V. Decree. op. S. 29 (B 09E-4); Firsov A.A. Messerschmitt V!109. M., 2001. S. 48, 52, 67 (German engines).

237Kondratyev V. Where did Stalin's falcons fly to? Response to M. Solonin's article "Where did Stalin's falcons fly" // Aviamaster. 2002. No. 2. S. 38.

238 Aircraft building in the USSR 1917-1945. Book. I. S. 79.

239 Kuznetsov S. First Yak. P.21.

240 See: Khazanov D.B. Unknown battle in the skies of Moscow. 1941-1942

Counteroffensive. S. 52; Kuznetsov S. First Yak. P. 63. Medved A.N., Khazanov D.B. MiG-3Z. S. 43.

241 Aircraft building in the USSR 1917-1945 Book. I.S. 79.

242 Calculated according to: Kuznetsov S. First Yak. pp. 64-65.

243 Ibid. pp. 42, 63.

244 Ibid. S. 45; Medved A.N., Khazanov D.B. MiG-3. S. 46.

245 Sobolev D.A., Khazanov D.B. Decree. op. S. 201.

246 Yurchenko A. Mikhail Kibkalov. S. 31.

247 See: Drabkin A. I fought in a fighter. pp. 138, 354; He is. I fought with the Sasami of the Luftwaffe. pp. 28, 389, 448.

248 Drabkin A. I fought in a fighter. S. 138.

249 Yakubovich N.V. Fighters Yakovlev. M., 2008. S. 74.

250 Aircraft building in the USSR 1917-1945. Book. 1. S. 244.

251 Ibid. Compare: Table 10 of this edition.

252 Aircraft building in the USSR 1917-1945. Book. 1. S. 242, 244.

253 See: Ibid. S. 242.

254 Op. Quoted from: Vakhlamov V. Sergey Dolgushin. S. 27.

255 Aircraft building in the USSR 1917-1945. Book. 1. S. 244, 85, 38; Kuznetsov S. First Yak. S. 63.

256 Op. by: Rybin Yu.EhretsepzaNe! beyond the Arctic Circle // Aviamas ter. 1999. No. 1.S. 25.

257Calculated from: Aircraft building in the USSR. 1917-1945 Book. I. S. 235. According to other sources, 3474 Yak-1s were built in 1942 (Kuznetsov S. Perviy Yak. S. 30).

258 Calculated from: Aircraft building in the USSR. 1917-1945 Book. I. S. 235.

259 Calculated from: Ibid. We also included in the final figure 22 Lavochkins, built in 1942 by plant No. 31 and designated with the compilers of the table as La-5FN. After all, La-5FN aircraft were produced only from March 1943.

260 Compiled according to: Aircraft building in the USSR. 1917-1945 Book. 1. S. 85, 86, 92 (V1109E-4iS-2, LaGG-3, Yak-1, Yak-76, La-5); Kosminkov K.Yu. The many-faced Yakk-7. S. 37 (Yak-7A and Yak-76); Onge. Yak-1. Difficult birth of first child. P. 49 (graph of the altitude and speed characteristics of the Yak-1, issue of September 1942); Kuznetsov S. First Yak. pp. 52, 63-65 (Yak-1); Alekseenko V., Nikolsky M. Decree. op. S. 30 (La-5); Yakubovich N.V. Aircraft Design Bureau S.A. Lavochkin. M., 2002. S. 153 (La 5); Google Yu Decree. op. S. 23 (B1109E-4 and C-2, EM190A-3); Rusetsky. Focke-Wulf. Em/190A, E.S.S. 24 (EM190A-3).

261 Yakubovich N.V. Aircraft OKBS.A.Lavochkin. S. 48.

262 Op. by: Sobolev D.A., Khazanov D.B. Decree. op. S. 182.

63 Pavlovsky M. Not living up to expectations // Aviamaster. 1997. No. 2. S. 37.

64 Kondratiev V. Comparative analysis of structures ... S. 416; Fighter Aviation Tactics. S. 8.

65 Sobolev D.A., Khazanov D.B. Decree. op. S. 187.

266 Aircraft building in the USSR. 1917-1945 Book. I. S. 89; Kondrat ev V. Comparative analysis of structures... P. 394.

267 Sobolev D.A., Khazanov D.B. Decree. op. pp. 177, 182, 183. Compare: Kosminkov K.Yu. Yak-1. Difficult birth of first child. P. 49 (graph of altitude and speed characteristics); He is. The many-faced Yak-7. S. 37.

268 See: Kuznetsov S. PerviyYak. pp. 52, 63-65; Google Yu Decree. op. S. 23.

269 Kuznetsov S. First Yak. S. 57.

270 Perov V.I., Rastrenin O.V. Assault aircraft of the Red Army. T.1.S. 129.

271 Ibid.

272 See: Sukhomlinov A.V. Vasily, son of the leader. M., 2001. S. 100.

273 Kosminkov K.Yu. The many-faced Yak-7. S. 33.

274 Khazanov D. A long way to the front of the improved "nine" // History of Aviation. 2000. No. 2.
S. 22.

275 Compiled by: Alekseenko V., Nikolsky M. Decree. op. P. 30 (LaGG-3, La-5);: Kosminkov K.Yu. The
many-faced Yak-7. S. 37 (Yak-7A, Yak-76); Kuznetsov S. First Yak. pp. 63-65 (Yak-1); Aircraft
building in the USSR. 1917-1945 Prince N.S. 85 (B 09E-4 and C-2). The time of ascent to
a height of 5000 m PM190A-3 was calculated according to: Rusetsky A. Focke-Wulf E
\ m19OA, E, S. S. 22 (test results of the captured R \ 190A-3 by the Americans in
July 1942).

276 Kuznetsov S. PerviyYak. S. 64, 45.

277 Op. Quoted from: Khazanov D. A long way to the front of the improved "nine" // History of Aviation.
2000. No. 2. S. 23.

278 Kondratiev V. Comparative analysis of structures ... S. 417-418.

279 Op. by: Sobolev D.A., Khazanov D.B. Decree. op. S. 182.

280 | it. by: Timofeev A.V. Decree. op. pp. 209-210.

281 Kuznetsov S. First Yak. pp. 74, 45.

282 Op. Quoted from: Khazanov D. A long way to the front of the improved "nine" // History of Aviation.
2000. No. 2.S. 22-23.

283 Ibid. S. 23.

284 Maslov M.I-153. S. 39.

285 Sobolev D.A., Khazanov D.B. Decree. op. S. 182.

286 Compiled by: Alekseenko V., Nikolsky M. Decree. op. S. 30 (LaGG-3, La-5); Kosminkov K.Yu. The many-
faced Yak-7. P. 37 (Yak-7TA, Yak-76); Kuznetsov S. First Yak. pp. 63-65 (Yak-1); Romanov V.
Decree. op. S. 29 (B1109E-4); Aircraft building in the USSR. 1917-1945 Book. I. S. 85, 168,
181 (V1109S-2, Soviet engines); Google Yu Decree. op. S. 36 (B11090-2); Firsov A.A. Decree.
op. S. 86 (08B605A); Medved A.N., Khazanov D.B. "Focke-Wulf" RM 190. Luftwaffe multirole
fighter. M. 2007. S. 19, 128 (EMM190A-3, VM\M/8010-2).

According to A.I. Rusetsky, the takeoff power of the VM\/8010-2 was 1724 hp, and in other
places of his works, this author indicates that this value was 1700 hp. (Rusetsky A. Focke-Wulf
Em190A, E, S. S. 9, 40; He is the same. Fighter Roske-M / iN RM! 190. History, design,
armament, combat use. M.; Mn. 2001.S. 6, 35).

287 See: Alekseenko V., Nikolsky M. Decree. op. S. 13.

I

288 Aircraft building in the USSR 1917-1945. Book. N.S. 244.

289 Ibid. S. 242, 244. Compare: Table 11 of this edition.

290 Op. by: Kotelnikov V.R., Petrov G.F., Sobolev D.A., Yakubovich N.V. "Americans" in Russia. M., 1999. S. 64.

291 Ibid. S. 71; Aircraft building in the USSR 1917-1945. Book. I. S. 242, 244. Compare: Table 11 of this edition.

292 Drabkin A. I fought in a fighter. pp. 246-248, 261-262.

293 Drabkin A. I fought with the Sasami of the Luftwaffe. S. 489.

294 Kotelnikov V.R., Petrov G.F., Sobolev D.A., Yakubovich N.V. Decree. op. S. 70.

295 DrabkinA. I fought in a fighter jet. pp. 211, 269.

296 Sobolev D.A., Khazanov D.B. Decree. op. S. 207.

297 By the summer of 1943, the Pi!109 was flying on the Soviet-German front! groups of the 3rd fighter squadron "Udet", Pi Sh - 5th fighter squadron "Aismeer", [, Pi Shgruppy and the 13th (Slovak) and 15th (Croatian) detachments of the 52nd fighter and J group 54 th fighter NOY "Grunherz", ana E \ M / 190 - 1st group of the 26th fighter squadron "Schlageter", |, Shi M groups and headquarters and 15th (Spanish) detachments of the 51st fighter "Mölders" and 1 Grünherz group. In the autumn, P and Sh groups of the Aismeera, 1U - Mölders I1, Ni I groups and the 13th (Slovak) and 15th (Croatian) detachments of the 52nd Fighter Squadron flew there on B1109, and on EM / 190 - And! groups and headquarters and the 15th (Spanish) detachments of the Mölders and 1, Ni M of the Grünhertz group.

298 Rusetsky A. Focke-Wulf Em190A, E S. S. 24.

299 Fighter Aviation Tactics. P. 13 (both speeds were achieved when the engine was running in forced mode). 300 See: Medved A.N. Focke-Wulf EM/190. M., 1993. pp. 59, 61; Aircraft construction in the USSR. 1917-1945 Book. I. S. 86; Rusetsky A. Focke

Wolf Em 190A, E, S. S. 24.

301 Bear A.N. Focke-Wulf EM/190. S. 61; Rusetsky A. Focke-Wulf Em / 19OA, E, S. S. 23 (judging by the fact that the Fokker mentioned by A.I. Rusetsky reached a maximum speed of 624 km / h, it was RM / 190A-4 No. 2362, tested at the LII, but Rusetsky is mistaken, indicating that the testing of this specimen began in 1942).

302 See: Kotlobovsky A., Blashchuk V. La-5FN from the point of view of the Luftwaffe // AeroHobby. 1993. No. 1. S. 26; Aircraft building in the USSR

1917-1945 Book. N.S. 96.

303 Medved A.N., Khazanov D.B. "Focke-Wulf" EM / 190. P. 24: Medved A.N. Focke-Wulf P\/90. S. 17; Rusetsky A. Focke-Wulf Em/190OA, RS. S. 41; Onge. Fighter Eoske-M/iN 190. S. 37.

304 Medved A.N. Focke-Wulf R\190. S. 61; Rusetsky A. Focke-Wulf E \ m / 19OA, E, Ts. S. 24; Fighter tactics. S. 13.

305 MCEE weighed 26.3 kg, and MC151 / 20 - 42 kg, i.e. about 15 kg more (Rusetsky A. Focke-Wulf RU190OA, E.S.S.42).

6 Calculated from: Aircraft building in the USSR 1917-1945. Book. I. S. 102. The data on the number of

five La-5s produced in 1943 (4,619 vehicles) are overstated, while the number of La-5FNs built in 1943 (429 vehicles) are underestimated. In the documents of the war years, both of these modifications were often designated the same - La-5. Apparently, therefore, the compilers of the table placed on S. 235, and failed to correctly determine how many of the 5047 (Ibid. S. 102) or 5048 (see: Ibid. S. 235) Lavochkins released in 1943 were La-5s, and how many were La-5FNs.

307 Calculated from: Ibid. S. 235.

308 Kuznetsov S. First Yak. S. 65 (up to 610 km / h at an altitude of 4100 m).

309 Aircraft building in the USSR 1917-1945 Book. I.S. 235.

310 Calculated from: Ibid.

311 Calculated according to: Perov V., Rastrenin O. Sturmovik Il-2 // Aviation and Cosmonautics Yesterday, Today, Tomorrow... 2001. No. 5-6. S. 76.

312 Aircraft building in the USSR 1917-1945 Book. 1. S. 105-106.

313 See: Stepanets A.T. Yak fighters of the period of the Great Patriotic War. M., 1992; Aircraft building in the USSR. 1917-1945 Book: I. Ch.Z.

314 Shavrov V.B. Decree. op. P. 188. Yakovlev S. Yak-9: from Stalingrad to Berlin // Model designer. 1975. No. 5. S. 16.

315 Yakovlev S. Decree. op. S. 16; Leipnik D.L. Decree. op. pp. 60-61 (the table is based on the data of A.T. Stepanets).

316 [//1avrov V.B. Decree. op. pp. 188, 190; Kuznetsov S. First Yak. P.63-65.

317 Baevsky G.A. Decree. op. S. 118.

318 Aircraft building in the USSR 1917-1945. Book. J. S. 102 (see also note 306 to this chapter).

319 Calculated from: Ibid. pp. 102, 235.

320 Compiled from: Ibid. pp. 85, 86, 92, 95, 96, 242, 243, 245 (V109S-2, Yak-9, Yak-1, Yak-76, LaGG-3, La-5, La-5FN, R-390- 2i 9-15); Leip nickname D.L. Decree. op. pp. 60-61 (Yak-9D, Yak-9T; the table is based on the data of A.T. Stepants); Alekseenko V., Nikolsky M. Decree. op. S. 30 (La-5, La-5FN); Google Yu Decree. op. S. 23 (V1109S-2); Romanov V. Decree. op. S. 29 (V1109S-6); Akapiev V.L. Krakhluftwaffe in the Battle of Kursk // Military History Journal. 1999. No. 2.S. 15 (B+109C-6); Rusetsky A. Focke-Wulf Em/190A, E, S. S. 24 (P190A-5).

321 Op. Quoted from: Rusetsky A.Focke-Wulf Em/190A, E.S.S. 19.

322 Op. by: There.

323 See, for example: Alekseenko V. Soviet Air Forces on the Eve and During the Great Patriotic War // Aviation and Cosmonautics Yesterday, Today, Tomorrow... 2000. No. 3.ÿ.5.

324 Kuznetsov S. Perviy Ya. S. 48.

325 See: Sobolev D.A., Khazanov D.B. Decree. op. S. 200; Kuznetsov S. First Yak. P. 97 (the 163rd series, starting from which, on the Yak-1, it was planned to install an emergency reset mechanism for the canopy cover, was built at the end of 1943); Khazanov D. A long way to the front of the improved "nine" // History of Aviation. 2000. No. 3. S. 42.

326 Op. Quoted from: Yurchenko A. Anatoly Morozov. S. 32.

327 Op. Quoted from: Sukhomlinov A.V. Decree. op. S. 100.

328 Drabkin A. I fought with the Sasami of the Luftwaffe. pp. 85, 97.

329 Op. Quoted from: Rusetsky A. Focke-Wulf Em/190A, E, S. S. 18.

330 Op. by: There. S. 16.

331 Drabkin A. I fought on IL-2. S. 175.

332 Romanov V. Decree. op. S. 29; Aircraft building in the USSR. 1917-1945 Kn.N.S. 87.

333 Aircraft building in the USSR 1917-1945. Book. I. S. 87, 97; Medved A.N. Focke-Wulf RM/190. S. 17.

334 Aircraft building in the USSR 1917-1945. Book. I. S. 111; Google Yu Decree. op. S. 31.

335 Compiled according to: Aircraft building in the USSR. 1917-1945 Book. I. S. 87, 97 (Soviet fighters and B1109S-2). The values of the lifting speed B1109C4-6 and RM190A-4 and A-5 are calculated according to the data given in the publications indicated in notes 332-334 to this chapter.

336 Fighter Aviation Tactics. P. 10.

337 Op. by: Aces of the Luftwaffe. REM 90 pilots on the Eastern Front. Part 2

Riga, 1997.S.5.

338 See: Rusetsky A. Focke-Wulf Em190A, E, S. S. 42; Aircraft building of the USSR 1917-1945. Kn.N.S.98.

339 Op. Cited from: Rusetsky A. Focke-Wulf Em190A, E. S. S. 22.

340 Ignatiev G. V. Decree. op. pp. 112, 164, 165, 169, 190.

341 Golubev V.F. Decree. op. S. 472; Drabkin A. I fought with the aces of the luff twaffe. S. 165.

342 See for example: Aircraft building in the USSR 1917-1945. Book. I. S. 94.

343 Russian archive. The Great Patriotic War. T. 15 (4-3). M., 1997. S. 380.

344 Rusetsky A. Focke-Wulf Em 190A, E.S.S.20.

345 Sobolev D.A., Khazanov D.B. Decree. op. S. 203.

346 Drabkin A. I fought in a fighter. pp. 215, 264.

347 Akapiev V.L. Decree. op. S. 16.

348 See: Golubev V.F.Decree. op. S. 370; Kozhedub I.N. Decree. op. P. 60: Kosminkov K. The Yak-3 fighter is a pilot's dream // Aviation Review. Issue. 5. Kharkov, 1996. S. 22-23; Khazanov D. A long way to the front of the improved "nine" // History of Aviation. 2000. No. 3. S. 46.

349 Kuznetsov S. First Yak. P. 90. |

50 Fighter Aviation Tactics. P. 10.

351 Op. Quoted from: Rusetsky A. Focke-Wulf Em/190A, E, Ts. S. 18-19.

352 Op. by: There. P.22.

353 Ibid. S. 23.

354 Fighter Aviation Tactics. C.3.

355 Knoke H. I flew for the Fuhrer. Diary of a Luftwaffe Officer. 1939-1945. M., 2003. S. 78-80.

356 Golubev V.F. Decree. op. pp. 408-409.

357 Ibid. pp. 242, 368.

358 Lipfert V.Decree. op. S. 89.

Ekhazanov D. Battle over Iasi. S. 21.

360 Alekseenko V. Soviet Air Forces on the Eve and During the Great Patriotic War // Aviation and Cosmonautics Yesterday, Today, Tomorrow... 2000. No. 3.ÿ.4.

361 Perov V., Rastrenin O. Sturmovik Il-2. S. 76.

362 Ibid.

363 Google Yu. Decree. op. S. 15.

364 Ibid. |

365 Alekseenko V. Soviet Air Forces on the Eve and During the Great Patriotic War // Aviation and Cosmonautics Yesterday, Today, Tomorrow... 2000. No. 3.ÿ.4.

366 Compiled from: Aircraft building in the USSR 1917-1945. Book. I. S. 85, 168, 181, 245 (LaGG-3, BE109S-2, R-39, Soviet and American engines); Kosminkov K.Yu. The many-faced Yak-7. S. 37 (Yak-76); Leipnik D.L. Decree. op. pp. 60-61 (Yak-9, Yak-9D, Yak-9T; the table is based on the data of A.T. Stepants); Kuznetsov S. First Yak. S. 65 (Yak-1); Alekseenko V., Nikolsky M. Decree. op. pp. 30-31 (La-5, La-5FN); Google Yu Decree. op. pp. 31, 36 (B11090-2, EPMM190A-4iA-5); Romanov V. Decree. op. S. 29 (V1109S-6); Rusetsky A. Focke-Wulf Em 19OA, E, Ts. S. 51 (EM/190A-4i A-5); Medved A.N. Focke-Wulf RM/190. S. 17, 64 (EP\/M190A-4iA-5); Firsov A.A. Decree. op. pp. 67, 94 (08605Au AM); Medved A.N., Khazanov D.B. "Focke-Wulf" RM 190. S. 19, 128 (VMM / 8010-2). G

According to other sources, the takeoff power of the VMM / 8010-2 was 1700 or 1724 hp. (See note 286 to this chapter).

367 Calculated from: Aircraft building in the USSR 1917-1945. Book. I. S. 245. E

368 Kotelnikov V.R., Petrov G.F., Sobolev D.A., Yakubovich N.V. Decree. op. S. 77; Drabkin A. I fought in a fighter. S. 258; He is. I fought with the Sasami of the Luftwaffe. S. 371.

369 Drabkin A. I fought with the Sasami of the Luftwaffe. pp. 489, 493.

370 Soviet aces. S. 16.

371 Aircraft building in the USSR 1917-1945 Book. 1.S.255.

372 Ibid. pp. 242, 245.

373 See: Alekseenko V. Soviet Air Forces on the Eve and During the Great Patriotic War // Aviation and Cosmonautics Yesterday, Today, Tomorrow... 2000. No. 3.ÿ.4.

374 Alekseenko V., Nikolsky M. Decree. op. S. 13.

375 Gerasimov G. Quantitative and qualitative characteristics of the Red Army Air Force on the eve of the war // Aviation and cosmonautics yesterday, today, tomorrow ... 2000. No. 1.ÿ.6.

376 Compiled after: Aircraft building in the USSR. 1917-1945 Book. I. S. 92, 95, 96, 110, 243, 245 (LaGG-3, Yak-7B, Yak-1, Yak-9T, La-5FN, Yak-3, R-399-15); Leipnik D.L. Decree. op. pp. 60-61 (Yak-9ED, Yak-9M; data from A.T. Stepants are based on the table); Alekseenko V., Nikolsky M. Decree. op. S. 31 (La-5, La-5FN, La-7); BulakhA. Me210/410 -